



# AMERICAN GAS

*Association*

# MONTHLY

SEPTEMBER 1946

VOL. 28 • NO. 9



"ALCOVE" KITCHEN . . . ANOTHER "NEW FREEDOM GAS KITCHEN" DESIGN

Copyright 1946, American Gas Association

*It's the cooking-est kitchen in town!*



**1. COOKS WITHOUT A LOOK!**

Modern automatic cooking reaches a new peak of ease and convenience on a new automatic Gas range built to "CP" standards. An ingenious Clock Control turns the Gas on . . . cooks a delicious oven meal . . . then automatically turns the Gas off.

**2. BAKES LIKE A DREAM!**

Cakes come out light and luscious... roasts shrink less, are wonderfully tender. For a new Gas oven is *automatic*! It stays at the exact temperature you set it for (even as low as 250°). And being Gas, it's *ventilated* . . . so that it browns evenly on any

**3. CLICK-SIMMERS IN A SECOND!**

Top-of-stove cooking is the fastest ever! Just flip the valves and these Gas burners instantly light to high-heat . . . another turn and they're automatically set on slow simmer. Yes, and there's no wasteful after-heat, long after you turn them off.

**4. FLAME-BROILS FOR YOU!**

A smokeless Gas broiler roasts. Whether it's golden rich chicken, luscious, crusty steak . . . the flame does the job up to the hilt. Remember, if you want superior performance *plus* every automatic feature, be sure you get the "New Freedom Gas Kitchen," now!

**COOLER . . . CLEANER!** No unwanted cooking odors, grease or heat in this kitchen because a special ventilating system works them away right at their source. And a new freedom from drudgery in the kitchen jobs, too... thanks to a silent, automatic free Gas refrigerator—the abundance of water from an *economical* automatic Gas water-heater—and the joy of cooking on an automatic Gas range with the "CP" standard. Start planning for them *all* in your own "New Freedom Gas Kitchen," now!

AMERICAN GAS ASSOCIATION

**GAS**

**THE WONDER FLAME THAT COOLS AS WELL AS HEATS**



## CONTENTS FOR SEPTEMBER 1946

### FEATURES

RECORD CONVENTION PLANNED . . . . .	363
LARGEST RADIANT HEATING PLANT . . . . .	368
GAS PRODUCTION RESEARCH—by Edwin L. Hall . . . . .	370
DEMONSTRATION TECHNIQUES—by Ruth Atwood Shank . . . . .	371
I DIDN'T THINK—by Ernest Beaumont . . . . .	374
SO THAT THEY MAY LIVE . . . . .	376
NATURAL GAS HOME STUDY COURSE—by C. M. Young . . . . .	377
LABORATORIES OPEN RESEARCH CENTER . . . . .	379
SPEAKING OF GAS—by J. E. Drew . . . . .	381
A STAGE THAT COMMANDS—by Anne V. McManus . . . . .	382
GOOD INDUSTRIAL RELATIONS—by Ellis O. Keller . . . . .	383
GAS GRCWS GLAMOROUS—by Glenn A. Bishop . . . . .	389

### SECTIONS

LIMITATIONS OF COST COMPARISONS—by O. K. Boyd . . . . .	393
WE MUST MAKE IT EASY TO BUY—by H. W. Nichols . . . . .	396
MODERN GAS KITCHEN EQUIPMENT—by John J. Bourke . . . . .	399
SULFUR IN MANUFACTURED GAS—by William Buckley . . . . .	403

### DEPARTMENTS

PROMOTION . . . . .	391
CONVENTION CALENDAR . . . . .	392
GAS GRAPEVINE . . . . .	402
LABORATORIES . . . . .	407
ASSOCIATED ORGANIZATION ACTIVITIES . . . . .	408
OBITUARY . . . . .	409
PERSONAL AND OTHERWISE . . . . .	410
PERSONNEL SERVICE . . . . .	416

This is one of those years, conventionwise, that comes once in a blue moon, which explains, of course, the unprecedented rush to secure reservations in Atlantic City next month. Without even a hint of what the program was going to be, gas men by the thousands have registered their intentions of being among those present at the opening gavel. . . . Just to provide them with a compelling reason for going, in addition to the long-awaited unveiling of new gas appliances at the exhibition, plus the pent-up desire to find out how the rest of the gas industry is going to meet postwar conditions, we are publishing a program that is a knockout. It's jam-packed with headline events. . . . While the convention overshadows all else, there are many other noteworthy features herein. Take, for example, that story of the world's largest heating installation in a plant that expects to produce a quarter million water heaters per year—it sounds like an American pipe dream (no pun). . . . Or Mr. Keller's basically simple but hard-to-execute program for producing good industrial relations that's bound to give a few hindsighted managements (only a few we hope) the quivers. . . . Or Mr. Bourke's information-packed article on new commercial cooking equipment.

• Subscription \$3.00 a year - Published eleven times a year by the American Gas Association, Inc. Publication Office, American Building, Brattleboro, Vt. Publication is monthly except July and August which is a bi-monthly issue. Address all communications to American Building, Brattleboro, Vermont, or to 420 Lexington Ave., New York 17, N. Y. All manuscript copy for publication should be sent to the editorial offices in New York. The Association does not hold itself responsible for statements and opinions contained in papers and discussions appearing herein. Entered as Second Class Matter at the Post Office at Brattleboro, Vermont, Feb. 10th, 1922, under the Act of March 3, 1879. Cable addresses: American Gas Association, "Amerigas, New York"; American Gas Association Testing Laboratories, "Amerigaslab, Cleveland."

EDITORIAL OFFICES:  
AMERICAN GAS ASSOCIATION  
420 LEXINGTON AVE., NEW YORK 17, N. Y.







JAMES M. BEALL, *Editor*

## Record Convention Planned

THE eyes of the gas industry will be riveted upon Atlantic City, N. J., the week of October 7 when the twenty-eighth annual convention of the American Gas Association—the first full-fledged postwar meeting—takes place. Simultaneously, a great exhibition of gas appliances and equipment, sponsored by the Gas Appliance Manufacturers Association, will be held.

All signs point to this being the largest and most significant convention ever held in the gas industry. Advance registration indicates an attendance in the neighborhood of 10,000—an all-time high. Demand for space in the exhibition has already exceeded any other such event in the history of the gas industry. Visiting delegates will be greeted with an eye-filling spectacle of row-upon-row of product exhibits—filling the vast municipal auditorium which is so large it will encompass a 14-story city building.

The pent-up energy and vitality of an awakened gas industry will also be reflected on the interest-packed programs of the general, departmental and sectional meetings. Broad-gauged problems of industry-wide significance will be discussed by top-flight speakers, both within and without the industry, at the three general sessions and the employee relations forum.

There will also be "brass tacks" meetings of the Natural Gas and Manufactured Gas Departments, and the Accounting, Residential Gas, Industrial and Commercial Gas, and Technical Sections. The always-popular home service breakfast, a home service roundtable and an innovation—a publication editors' breakfast—will round out the business program.

An attractive entertainment program, which is outlined elsewhere, has been arranged by the Entertainment Committee under the chairmanship of A. J. Gonnoud, president, Kings County Lighting Company.

Striking to the heart of vital problems, the convention

gets under way Monday morning with meetings of the Association's two departments. Under Chairman R. H. Hargrove, United Gas Pipe Line Company, the Natural Gas Department will spotlight discussions of natural gas reserves, pipe line flow research, volume sales and recent developments in natural gas regulation.

The Manufactured Gas Department, led by Hudson W. Reed, chairman of the department and president of The Philadelphia Gas Works Company, has arranged for authoritative presentations on topics of major importance to manufactured and mixed gas companies. Speakers will include E. V. Murphree, vice-president, Standard Oil Development Company, New York, on "Research—An Industrial 'Must,'" and William W. Bodine, financial vice-president, Penn Mutual Life Insurance Co., Philadelphia, on "The Financial Outlook of the Manufactured Gas Industry."

An important feature of the Manufactured Gas Department meeting will be a symposium on the outlook for raw materials for manufactured and mixed gas companies from the standpoint of their availability and future costs. Ranking executives of companies leading in the supply of coal, oil, liquefied petroleum products and natural gas will review the outlook for each of these materials.

Putting a finger on one of the nation's foremost industrial problems, an employee relations forum will be held Monday afternoon under the leadership of Fred R. Rauch, chairman of the Association's Personnel Committee, and vice-president, The Cincinnati Gas & Electric Company. Introduced by Everett J. Boothby, president of the American Gas Association, this timely program includes such headline topics as: "Management's Stake in Collective Bargaining" by Dr. George W. Taylor, Professor of Industry, The Wharton School of Finance & Commerce, University of Pennsylvania; "A Program for Labor Peace" by C. B. Boulet, director of personnel, Wisconsin Public Service Corp., Milwaukee; "Better Rela-

● Opposite: If you want to see the ammunition the gas industry is preparing for those "big guns" go to the Atlantic City convention. In reality, the picture shows the photographer, Mel Ott, Southern Calif. Gas Co., during construction of a 22" pipeline

tions Through Better Information" by W. H. Senyard, personnel director, Louisiana Power & Light Co., Shreveport. Discussion leaders will include M. V. Cousins, personnel director, United Gas Pipe Line Company, Shreveport; and F. W. Fisher, director of personnel and public relations, Rochester Gas & Electric Corporation.

The Convention Program Committee, headed by Irving K. Peck, Manufacturers Light and Heat Company, Pittsburgh, has been tireless in putting together a general sessions' program of compelling interest. With President Boothby presiding, the first general session opens Tuesday morning with a report on the Association's Finances by Edward F. Barrett, A. G. A. treasurer and president, Long Island Lighting Company, which will be followed by the election of officers for the 1946-1947 term.

J. A. Krug, Secretary of the Interior, Washington, D. C., addressing the Tuesday session, will lead off an imposing array of speakers from outside the industry. Widely known and respected in the gas industry, Mr. Krug's background as wartime director of the Office of War Utilities and as chairman of the War Production Board, not to mention his former affiliation with the Tennessee Valley Authority, make him admirably equipped to discuss "The Government and Business."

### Research and Promotion

The gas industry's stepped-up program of research and promotion with its many-fauceted developments will be placed before the industry in the annual report of the Association's managing director, H. Carl Wolf. Speaking on "An Industry With a Program," Mr. Wolf will delineate the cardinal points in the industry's platform of progress.

Concluding the first general session will be an inspiring address on "Public Relations and Selling" by Arthur H. Motley, president, Parade Publication, Inc., New York. A former Crowell-Collier executive, publisher of *American Magazine*, and currently head of the picture supplement "Parade," Mr. Motley has established a national reputation for his business, advertising and editorial skill. As vice-chairman of the National Speakers' Committee of the Committee for Economic Development

and frequent speaker at national and local gatherings, he has taken a prominent part in C.E.D.'s forward-looking program.

The second general session, Wednesday evening, will be combined with an entertainment function wherein the business events will be followed by a musical concert. At this session Mr. Boothby will deliver his Presidential Address which will review the high spots of his administration and present his views on the prospects of the gas industry in the competitive postwar period.

A feature of the evening session will be the presentation of awards for outstanding individual and company achievements during the year.

## Convention Entertainment

### Monday evening

Dancing—Music by NBC Orchestra under the direction of Harry Meyer.

### Tuesday evening

The President's Reception and Dance—Music by NBC Orchestra under the direction of Harry Meyer.

### Wednesday afternoon

Ladies Bridge—Tea.

### Wednesday evening

Concert and musical features.

NBC Orchestra.

Soloist—Miss Vivian Della Chiesa, Star of Opera, Concert and Radio.

Special features from The Washington Gas Light Company's Evening Radio Program—WONDER FLAME.

### GOLF

Arrangements have been made with Seaview Country Club and Atlantic City Country Club for extended golf courtesies to delegates.

### EXHIBITION

One morning will be set aside as a special period for the ladies attending the Convention to examine the display of modern gas appliances and equipment. Since no functions are planned for Wednesday afternoon and Friday morning, all delegates will be free to attend the exhibition at those times.

Guest speaker at the Wednesday general session will be Dr. Pierce Harris, Minister, First Methodist Church, Atlanta, Georgia, ex-professional baseball player, and noted speaker on human interest topics. He was an outstanding success in his appearance before the Southern Gas Association at Atlanta several years ago, and his address, entitled "Looking Up," is expected to set a high inspirational standard for the convention.

The third general session, Thursday morning, will open with an analysis of the "Economics of Tomorrow's Business" by Prof. Erwin H. Schell, head of the Business and Engineering Administration, Massachusetts Institute of Technology, Boston. Professor Schell is no newcomer on gas industry programs and has always had a valuable message for his audience.

## Housing in Spotlight

Focussing attention on the gas industry's greatest market, the American home, Robert F. Gerholz of Gerholz-Healey Company, Flint, Michigan, will present an informative summary of the latest trends in residential housing. In addition to heading a prominent Flint concern, Mr. Gerholz is a past president of the National Association of Home Builders and has his finger on the pulse of the construction industry.

Returning to a subject which will have received concentrated attention at the employee relations forum, Warren Whitney, manager, National Cast Iron Pipe Division, James B. Clow & Sons, Birmingham, will talk on "Human Relations—Today's Management Challenge." Under his guidance Mr. Whitney's company has established an enviable record in safety and personnel matters and he will bridge the gap between the two sessions by emphasizing the importance and interrelation of these topics.

The general sessions will close with a report of the Time and Place Committee on the 1947 Annual Convention by N. T. Sellman, chairman, and vice-president, Westchester Lighting Company, and a report of the Resolutions Committee.

A new feature of the convention program will be a publication editors' breakfast to be held Tuesday morning under the chairmanship of William B.



*Convention setting—The municipal auditorium, Atlantic City, N. J.*

Hewson, advertising manager, The Brooklyn Union Gas Company. Guest speaker will be Kenneth C. Pratt, head of his own firm of public relations consultants specializing in company reports and publications, and also editor of "Stet," the house magazine for house magazine editors. Following Mr. Pratt's address, the meeting will be thrown open to a roundtable discussion of editors' problems.

Ample time has been allowed between sessions for a thorough inspection of the manufacturers' exhibits and no events are scheduled for Wednesday afternoon, thus allowing further time for this activity. Friday of convention week is being reserved for committee and other miscellaneous meetings.

Following are the tentative Departmental and Sectional programs:

#### **Manufactured Gas Department**

MONDAY, OCTOBER 7—10:00 A.M.  
HOTEL TRAYMORE

##### **Opening Remarks**

Hudson W. Reed, Chairman  
President, The Philadelphia Gas Works Co., Philadelphia, Pa.

##### **Report of Nominating Committee**

George S. Hawley, Chairman  
President, The Bridgeport Gas Light Co., Bridgeport, Conn.

##### **Election of Managing Committee**

Symposium—The Outlook for Raw Materials  
Coal—(Speaker to be announced)

Oil—A. J. McIntosh, Chief Domestic Economist, The Socony-Vacuum Oil Co. Inc., New York, N. Y.

Liquefied Petroleum—Geo. R. Benz, Manager, Chemical Products Department, Phillips Petroleum Co., Bartlesville, Okla.

Natural Gas—(Speaker to be announced)

##### **Research—An Industrial "Must"**

E. V. Murphree, Vice-President, Standard Oil Development Co., New York, N. Y.

##### **The Financial Outlook for The Manufactured Gas Industry**

William W. Bodine, Financial Vice-President, Penn Mutual Life Insurance Co., Philadelphia, Pa.

#### **Natural Gas Department**

MONDAY, OCTOBER 7—10:00 A.M.  
CLARIDGE HOTEL

##### **Presiding**

R. H. Hargrove, Chairman, Vice-President and General Manager, United Gas Pipe Line Co., Shreveport, La.

##### **Opening Remarks**

R. H. Hargrove, Chairman

##### **Report of Nominating Committee and Election of Managing Committee Members**

J French Robinson, Chairman  
President, The East Ohio Gas Co., Cleveland, Ohio.

##### **Report of Time and Place Committee for 1947 Spring Meeting**

C. E. Bennett, Chairman  
President, The Manufacturers Light and Heat Co., Pittsburgh, Pa.

##### **Report of Natural Gas Reserves Committee**

N. C. McGowen, Chairman  
President, United Gas Pipe Line Co., Shreveport, La.

##### **A New Research Project—Pipe Line Flow**

C. H. M. Burnham, Chairman, Pipe Line Flow Subcommittee  
Vice-President and Chief Engineer, Panhandle Eastern Pipe Line Co., Kansas City, Mo.

##### **Selling Natural Gas in Volume**

J. H. Gumz, Chairman, Large Volume Sales Committee  
Manager, Commercial & Industrial Sales, Pacific Gas and Electric Co., San Francisco, Calif.

##### **Recent Developments in Natural Gas Regulation**

Charles I. Francis, Vinson, Elkins, Weems & Francis, Attorneys at Law, Houston, Tex.



*An exhibition of gas appliances held some years ago in Atlantic City*

## Accounting Section

TUESDAY, OCTOBER 8—2:00 P.M.  
RITZ CARLTON HOTEL  
GENERAL SESSION

### Report of Chairman

E. F. Embree, Chairman, Accounting Section  
New Haven Gas Light Co., New Haven, Conn.

### Report of Nominating Committee

C. E. Packman, Chairman, Chicago, Illinois  
Election of Officers  
On the Job Training for White Collar Employees  
Lewis B. Moulton, Director  
The Vocational, Rehabilitation and Educational Services for Veterans, Veterans Administration, Washington, D. C.

### Employee Relations in the White Collar Group

Kenneth A. McIntyre  
Consultant in Industrial Relations, Kenneth A. McIntyre Associates, Cleveland, Ohio

WEDNESDAY, OCTOBER 9—10:00 A.M.  
RITZ CARLTON HOTEL,  
GENERAL ACTIVITIES GROUP SESSION

### Report of General Accounting Subcommittee on Revisions in Uniform System of Accounts

Alwyn M. Hartogensis, Chairman  
Ebasco Services Incorporated, New York, N. Y.

### Report of General Accounting Subcommittee on Preservation and Destruction of Records

B. S. Rödey, Jr., Chairman  
Consolidated Edison Co. of New York, Inc., New York, N. Y.

### A Review of Current Developments of Interest to Utility Accountants

C. E. Packman, Chicago, Illinois

### General Discussion Period

WEDNESDAY, OCTOBER 9—10:00 A. M.  
CUSTOMER ACTIVITIES GROUP SESSION

### Zone Meter Reading and its Advantages

G. E. Curtis, Chairman  
Customer Accounting Subcommittee  
Boston Consolidated Gas Co., Boston, Mass.

### Are the Effects of Zone Meter Reading on Credit and Collection Policies and Practices More Effective with Zone Metering?

Harold F. Quad, Chairman  
Customer Collections Committee  
Public Service Electric & Gas Co., Newark, N. J.

### Improving Customer Relations Through Employee Training

L. A. Horton, Chairman  
Customer Relations Subcommittee  
St. Louis County Gas Co., Webster Groves, Mo.

### General Discussion Period

## Industrial & Commercial Gas Section

TUESDAY, OCTOBER 8—12:00 P.M.  
LUNCHEON

ROSE ROOM, TRAYMORE HOTEL  
Future Industrial Production  
(Speaker to be announced)

TUESDAY, OCTOBER 8—2:00 P.M.

### Our Equity In Industry

Presenting the value of industrial and commercial gas to industry as well as the value of the industrial and commercial sales load to the gas industry.

E. M. Tharp  
The Ohio Fuel Gas Co., Columbus, Ohio

### Things To Come

The industrial and commercial research program.

Eugene D. Milener  
Coordinator of General Research, American Gas Association, New York, N. Y.

### A Modern Alliance

An address on the cooperation between our industries which creates success in mutual sales results.

I. S. Anoff, Chairman  
Food Service Equipment Industry, Inc., Chicago, Illinois

### Organizing For Accomplishment

A presentation of the functions and requirements of a successful Industrial and Commercial Sales Department.

W. M. Jacobs, Southern California Gas Co., Los Angeles, Calif.

THURSDAY, OCTOBER 10—2:00 P.M.  
TRAYMORE HOTEL

### Chairman's Report

Harry A. Sutton, Chairman  
Industrial & Commercial Gas Section  
Public Service Electric & Gas Co., Newark, N. J.

### Report of Nominating Committee

Harry K. Wrench, Chairman  
Minneapolis Gas Light Co., Minneapolis, Minn.

### Election of Officers

### Objectives in the Food Service Field

Leon Oorusoff, Chairman  
Food Service Equipment Committee  
Washington Gas Light Co., Washington

### Standard Brass Foundry Practices As They Effect Gas Sales

William Wirt Young, W. Wirt Young & Associates, Waterbury, Conn.

### Selling Gas For Firing Large Boilers

L. S. Reagan, The Webster Engineering Co., Tulsa, Okla.

### New Developments In Industrial Furnaces and Ovens

A panel discussion presented by representa-

tives of five manufacturers of industrial furnaces and ovens.

Herman Gehrich, Vice-President, Gehrich & Gehrich, Inc., Woodside, N. Y.  
Richard J. Ruff, Sales Manager, Young Brothers Co., Detroit, Mich.  
Frederic O. Hess, President, Selas Corporation of America, Philadelphia, Pa.  
R. R. LaPelle, Vice-President, Dempsey Industrial Furnace Corp., Springfield, Mass.  
Charles E. Thomas, Asst. To Pres., The Lithium Co., Newark, N. J.

## Residential Gas Section

WEDNESDAY, OCTOBER 9—10:00 A.M.  
BALLROOM, CONVENTION HALL

### Presiding:

J. J. Quinn, Chairman  
Residential Gas Section, Boston Consolidated Gas Co., Boston, Mass.

### Report of Nominating Committee

J. H. Warden, Chairman, Conversions and Surveys, Inc., New York, N. Y.

### Election of Officers

Chairman's Address  
J. J. Quinn

### Know Sales Or No Sale (Skit)

Narrator: R. E. Williams, Chairman  
Committee on Selection and Training of Sales Personnel  
Binghamton Gas Works Co., Binghamton, N. Y.  
Actors: The Cuthrell Players, The Brooklyn Union Gas Co.

### Dreams Don't Come True

H. V. Potter, Director  
New Freedom Gas Kitchen Bureau, American Gas Association, New York, N. Y.

### From An Automatic Point of View

E. Carl Sorby, George D. Roper Corp., Rockford, Illinois

THURSDAY, OCTOBER 10—2:00 P. M.  
Presiding:

W. M. Chamberlain, Vice-Chairman  
Residential Gas Section  
Michigan Consolidated Gas Co., Grand Rapids, Mich.

### The Fourth Cooking Zone

C. C. Young, The Gas Service Company, Kansas City, Mo.  
Colleen Fowler, Kansas City Gas Co., Kansas City, Mo.

### Cold Cash For Hot Water

Elmer Cone, Ruud Manufacturing Co., Pittsburgh, Pa.

### Cut Yourself A Piece of Cake (Skit)

Narrator: H. S. Christman, Chairman  
Committee on Dealer Relations Committee  
The Philadelphia Gas Works Co., Philadelphia, Pa.  
Actors: The Cuthrell Players, The Brooklyn Union Gas Co.



## Sales Ahead!

William C. Gordon, Jr., Market Analyst,  
Household Appliance Research Division,  
Curtis Publishing Co., Philadelphia, Pa.

## Home Service Breakfast

WEDNESDAY, OCTOBER 9—8:00 A.M.

### HOTEL TRAYMORE

Delegates are requested to purchase tickets during registration or before 2:00 P.M. on Tuesday, October 8, at the A. G. A. Registration Desk.)

### Presiding:

Lillian Dunbar, Chairman  
Home Service Committee  
Cambridge Gas Light Co., Cambridge, Mass.

### Greetings:

E. J. Boothby, President  
H. Carl Wolf, Managing Director  
J. J. Quinn, Chairman, Residential Section,  
American Gas Association

### "It's In the News:"

Current development in frozen foods, laundering of modern fabrics and explanation of new appliances as these developments fit into home service promotion of gas equipment.

Elizabeth Lynahan, The Peoples Gas Light & Coke Co., Chicago, Ill.

### HOME SERVICE ROUND-TABLE

#### Open Meeting

TUESDAY, OCTOBER 8—2:00 P.M.

### CLARIDGE HOTEL

## Importance of Water Heater Promotion

W. J. Schmidt, Chairman  
Water Heater Committee  
Long Island Lighting Co., Mineola, L. I., N. Y.

## Laundry Planning

Edwina Nolan, Bendix Corporation, South Bend, Ind.

## Good Grooming Classes in Schools

Kathryn Barnes, Equitable Gas Co., Pittsburgh, Pa.

## Home Service Helps The Dealer

Mildred Clark, Oklahoma Natural Gas Co., Tulsa, Okla.

## The Preparation of Food Displays for Slides and Photographs

(Speaker to be announced)

## Home Service The Road to Opportunity (record transcriptions)

Mary Belle Burnett, Cincinnati Gas & Electric Co., Cincinnati, Ohio

## Technical Section

TUESDAY OCTOBER 8—2:00 P. M.

### HOTEL AMBASSADOR

### Address of Chairman

L. J. Eck, Chairman

### Technical Section

Minneapolis Gas Light Co., Minneapolis, Minn.

### Report of Nominating Committee

L. E. Knowlton, Chairman  
Providence Gas Co., Providence, R. I.  
Election of Officers

### Economic Production for Gas Loads Ahead

E. G. Boyer, Philadelphia Electric Co., Philadelphia, Pa.

## Symposium on Meeting Peak Loads

Canadian Practice—R. L. Bevan, Union Gas Co. of Canada, Ltd., Chatham, Ont.

Chicago Experience—Representative, The Peoples Gas Light & Coke Co., Chicago

## Koppers Plans

Dr. W. C. Rueckel, Koppers Co., Seaboard Division, New York, N. Y.

## OPEN FORUM—GAS LOADS

WEDNESDAY, OCTOBER 9—10:00 A.M.

### Distribution Committee Report

T. H. Kendall, Chairman, Equitable Gas Co., Pittsburgh, Pa.

### Pipe Coatings and Corrosion Research Committee Report

R. F. Hadley, Chairman  
Susquehanna Pipe Line Co., Philadelphia, Pa.  
(To include work of Research Associate—Dr. Kent M. Wight)

### Construction and Maintenance

(Speaker to be announced)

### Motor Vehicle Committee Report

S. G. Page, Chairman, Equitable Gas Co., Pittsburgh, Pa.

### The Present-Day Motor Vehicle Situation and Outlook for the Future

E. W. Jahn, Consolidated Gas, Electric, Light, & Power Co., Baltimore, Md.

### Gas Production Committee Report

R. Van Vliet, Chairman  
New York & Richmond Gas Co., Stapleton, S. I., N. Y.

THURSDAY, OCTOBER 10—2:00 P.M.

Selecting and Training Service Personnel  
T. J. Perry, The Brooklyn Union Gas Co., Brooklyn, N. Y.

### Appliance Servicing

J. P. Dresen, Public Service Co. of Colorado, Denver, Colorado

### Chemical Committee Report

Dr. C. W. Wilson, Chairman  
Consolidated Gas Electric Light & Power Co., Baltimore, Md.

### Gas Conditioning Committee Report

H. D. Lehman, Chairman  
The Philadelphia Gas Works Co., Philadelphia, Pa.  
(to cover also Dr. E. W. Guernsey's research on organic sulfur)

### Interchangeability of Gases

W. R. Fraser, Past Chairman  
Mixed Gas Committee  
Michigan Consolidated Gas Co., Detroit  
J. F. Anthes, Chairman  
Advisory Committee on Mixed Gas Research  
The Brooklyn Union Gas Co., Brooklyn

## SPECIAL CONVENTION TRAINS

ARRANGEMENTS have been made with the Frisco and the Missouri-Kansas-Texas lines for special railroad accommodations from Texas and Oklahoma to the A. G. A. Convention at Atlantic City in October. Three extra all-room sleepers will be operated from Texas on the following schedules:

### FROM DALLAS VIA JOINT MKT-FRISCO TRAIN NO. 2,

#### "TEXAS SPECIAL"

Lv. Dallas	MKT No. 2	4:15 P.M.	October 4
Ar. St. Louis	FRISCO No. 2	8:30 A.M.	October 5
Lv. St. Louis	PRR	10:00 A.M.	October 5
Ar. No. Philadelphia	PRR	6:20 A.M.	October 6
Lv. No. Philadelphia	PRSSL No. 1005	8:00 A.M.	October 6
Ar. Atlantic City	PRSSL No. 1005	9:15 A.M.	October 6

### FROM OKLAHOMA CITY—TULSA, OKLAHOMA, FRISCO TRAIN NO. 10,

#### "METEOR"

Extra Pullmans will also be operated, if sufficient number warrant, as follows:

Lv. Oklahoma City	FRISCO No. 10	6:00 P.M.	October 4
Lv. Tulsa	FRISCO No. 10	9:00 P.M.	October 4
Ar. St. Louis	FRISCO No. 10	7:45 A.M.	October 5
Lv. St. Louis	PRR No. 66	10:00 A.M.	October 5
Ar. No. Philadelphia	PRR No. 66	6:20 A.M.	October 6
Lv. No. Philadelphia	PRSSL No. 1005	8:00 A.M.	October 6
Ar. Atlantic City	PRSSL No. 1005	9:15 A.M.	October 6



*Aerial view of the Kankakee Works of the A. O. Smith Corporation, where water heaters will be manufactured at the rate of 250,000 per year*

## Largest Radiant Heating Plant

**Unique gas installation which will heat 10-acres of floor space with 40-miles of pipe uses 190 individual water heaters to make 120 separate heating units**

**I**N a factory building now nearing completion on an 80-acre tract of land in Kankakee, Illinois, the A. O. Smith Corporation has installed the largest gas radiant heating system on record. This company manufactures miscellaneous products fabricated from steel which include giant fractionating towers for oil refineries, large size pipe for oil and gas transmission lines, glass-lined industrial processing tanks, gas-fired domestic water heaters and glass-lined domestic hot water storage tanks.

This new plant is largely of one-story construction, 1200 feet long and 315 feet wide. The ground floor space is 381,750 square feet. In addition there are mezzanine floors for laboratories comprising 10,650 square feet, and office space consisting of 22,788 square feet, making a total of 415,188 square feet which is piped for radiant heating.

The radiant-heating system consists of 40-miles of piping and will circulate 15,000 gallons of hot water 12 times an hour, or a total circulation of 180,000 gallons per hour. The piping consists of wrought iron, copper and steel. The wrought iron pipe ranges in size from two-inch down

to three-quarter-inch. The copper piping is from one-inch to three-eighths-inch, and the steel is five-eighths Bundy tubing. The use of these different types of piping was not only dictated by engineering logic, but the opportunity for experimentation was not overlooked.

This entire radiant-heating installation will be a proving ground and much desired information will be obtained during the cold weather months when it will be in full operation. The answers to many questions which today are puzzling the heating industry may be uncovered as a result of this.

The main plant is divided into 48 bays, each of which runs across the entire width of the plant (315 feet) and is 25-feet wide. Two gas-fired volume water heaters each having an input of 190,000 B.t.u. per hour, and each heater serving panels which cover half a bay. Eighty percent of the pipe installation in the floor of the plant is of the grid-type consisting of headers and laterals of wrought iron pipe.

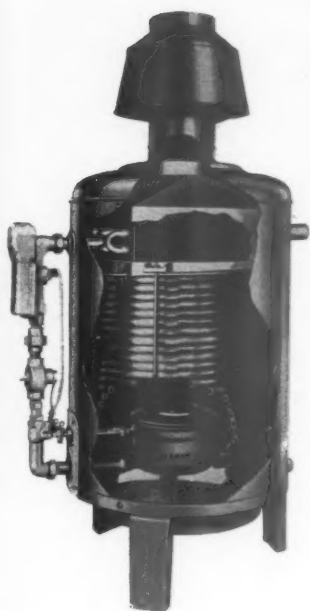
Some of the grids have 140-foot two-inch headers with 20-foot inch and a quarter laterals, other grids are 20-foot headers and 140-foot laterals. This was done so that the long and

short header types could be tested as to relative efficiency in circulation. At an average point in the plant, a header has been extended above the floor and fitted with unions so that testing equipment can be connected to furnish accurate data on the performance of the system.

The gas-fired heaters will furnish water at 140° F. which it is estimated will produce a temperature of 85° F. on the floor slab and so maintain an air temperature in the plant of 65° F. These temperatures are based on the severest weather conditions or down to minus 10° F. outside.

The selection of the grid-type of construction was decided upon as best to meet possible future changes in floor arrangements and foundations because new headers can be installed as needed around new machinery foundations. It also permitted mass production of headers and laterals and made possible many welded joints at the point of manufacture rather than on the job. It also permitted the use of random lengths of pipe which made possible considerable economy.

On the mezzanine floors all the heating installation is of Bundy tubing as it was the only tubing available



*Smithway-Burkay water heater, 120 of which will furnish hot water for the heating system*

that would fit into the reduced thickness of the concrete slab that forms the floor. This tubing is five-eighths outside diameter with a .049" wall. The construction is grid-type throughout with center-to-center distances varying from six to twelve inches, the closer spacing being near the outside walls of the building and increasing as the grid is further from the outside walls depending upon the estimated rate of heat loss.

For the ground floor offices, wrought iron pipe grids are in the floor but with closer center-to-center spacing to give a slightly higher room temperature than out in the plant area. In the ceiling of the first floor offices an auxiliary wrought iron surface was used at the outside exposures to add radiating surface for the second floor offices at the windows and for the ceiling of the first floor. The office areas on the second floor have copper tubing in both grid and continuous coil construction installed in the ceiling so that heat will radiate downward.

All the gas-fired heaters are connected to the panels in a by-pass hookup so that the full heating capacity of the heater can be utilized. With the 96 heaters serving the plant floor area and separate ones for the first floor offices, mezzanine, second

floor areas, heaters for hot water in wash rooms and to maintain a 40° F. temperature in the 100,000-gallon tank connected to the sprinkler system, there is a total of 120 individual gas-fired heaters.

There is obviously great flexibility in the system since the entire building is heated in reality by 120 small systems. Any area of the plan can be turned on and off. No serious heating problem arises if a bay or two must be shut off because of floor rearrangement. The entire vast heating system can be serviced by a single man.

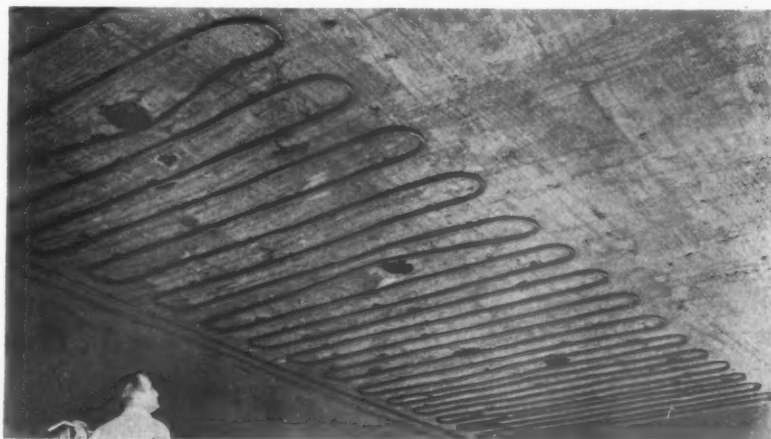
The heating system is expected to contribute substantially to the cleanliness of the plant as each heater is flued to the outside air, and therefore to better health condition for the employees. Dust will be at a minimum because the radiant heating system will not cause air agitation. This system will also contribute to the physical efficiency of the plant by offering

less interference to conveyor systems and other overhead appurtenances.

The system will be under thermostatic control throughout to give automatic temperature maintenance.

In addition to using natural gas for heating the plant, all other heating operations will be gas-fired. There are three gas-fired boilers each using 22,000 cubic feet per hour to supply process steam. Three enameling furnaces at a total of 15,000 cubic feet per hour, galvanizing processing, atmosphere generator for the furnaces, pre-drying of glass, bonderizing, paint drying, washers and other small uses making a total of nearly 66,000 cubic feet per hour complete the uses of gas for their industrial processing.

Starting late in September the plant will be in production exclusively on domestic storage water heaters and it is estimated that in a few months they will reach their proposed production rate of 250,000 per year.



*Copper tubing installed on second floor ceiling*



*Typical grid construction in wrought iron pipe*

# Gas Production Research

Quarterly report of A. G. A. committee shows significant progress in getting enlarged research program under way

BY EDWIN L. HALL

*Secretary-Coordinator, Gas Production Research Committee, American Gas Association*

**D**URING the past quarter the Gas Production Research Committee has devoted a great deal of attention to selecting a suitable location for a test of the Hall Regenerative High B.t.u. Oil-Gas Process. This process, if successful, will provide a method for producing high B.t.u. oil gas from heavy oil with heavy oil tar as the only by-product.

Some locations considered by the committee would require the installation of comparatively expensive heavy oil and heavy oil tar-handling equipment before the test could be run. Materials of construction required to modify existing carburetted water gas sets so that they would be suitable for the test at present are difficult to obtain. The committee has found that The Consolidated Gas, Electric Light and Power Company of Baltimore has equipment suitable for modification which is available for conversion and test use following the coming winter's peak load.

In the meantime, the committee has authorized preparation of a separate estimate of the cost of installing this process in another location where heavy oil and heavy oil tar-handling equipment would have to be provided before a test could be run.

## Sulfur Resistant Catalysts, CPR-7

The Institute of Gas Technology has developed certain catalysts that have promising sulfur-resistant properties. This preliminary development work has

been carried on over the past few months under Project CPR-7. The findings of this preliminary survey have encouraged the committee to recommend an extension of this CPR-7 project for the next year for further study and development of sulfur-resistant catalysts that might be used in—

- (a) Steam-hydrocarbon reaction
- (b) Organic sulfur conversion
- (c) Up-grading of blue gas
- (d) The water gas shift reaction.

## Fluidization Study, CPR-17

Preliminary studies that were made by the Institute of Gas Technology under Projects CPR-15, Study of the Fluidization Process or FCC Fluidized Catalytic Cracking Process, and CPR-16, Study of the Thermoform Process, together with a more detailed study of these processes under original Project CPR-17 have encouraged the committee to continue the investigation of these methods of heat transfer. The committee has recommended an extension of Project CPR-17, Fluid Gasification, to be devoted to a study of the fundamentals of this process, particularly as applied to the cracking of liquid fuels, although the application to the gasification of solid fuels is not being overlooked.

The two projects, CPR-7 and CPR-17, together with Project CPR-5, which is a study of the fundamentals of the steam-carbon and steam-oxygen-carbon reactions at various temperatures and pressures, represent a substantial investment in fundamental research at the Institute of Gas Technology.

## Pilot Plant for Hydrocarbon Reforming, CPR-1C

In addition to these fundamental projects the Institute was asked to survey locations in the Chicago area which might be suitable for the installation of a pilot plant for reforming hydrocarbons such as natural gas, propane or butane. A suitable location has been selected in the Crawford Avenue plant of The Peoples Gas Light & Coke Company in Chicago. If no unforeseen difficulties arise, the pilot unit for hydrocarbon reforming will be installed there and operated by the Institute in order to obtain more complete information regarding the use of such units for the production of water gas.

## Other Projects

There are two projects at Battelle Memorial Institute. The first project, Study of the Water Gas Reaction, has passed the preliminary phases and the committee has authorized continuation of the study for another year. The second project, A Preliminary Study of Clinker Formation in the Steere Cycle, has been completed and a report should be available in the near future.

Investigations at Pennsylvania State College of the properties of water gas tar have indicated that this is a fruitful field for investigation. Preliminary tests have shown that tar undergoes rapid changes in characteristics due to the polymerization of unsaturated compounds. The initial phase will probably concentrate upon the isolation and identification of these compounds.

The Mixed Gas Research work at the A. G. A. Laboratories has developed into a very interesting project. Plant surveys have been completed and laboratory work will be started soon.

## Merchandising Council Elects Officers

**T**HE Blue Flame Merchandising Council of Dallas, made up of gas appliance manufacturers' representatives and sales executives of gas utility companies, celebrated its first anniversary in July and re-elected the following officers: president, Fred D. Bradley, Southern Union Gas Co.; vice-president, Carl Trevitt, Lone Star Gas Co.; secretary-treasurer, Jim B. Reese, Lone Star Gas Co. Directors elected were: Seward Abbott, Servel, Inc.; Leon Conner, Athens Stove Co.; W. W. Hall, General Gas Light Co.; J. W. Martin, L. P. G. Equipment Corp.

The objectives of the Council are to exchange ideas in connection with the merchandising of gas appliances; to collect and disseminate information of benefit to its members regarding various phases of gas appliance merchandising; to promote acquaintance, good fellowship and closer business relationship between persons identified with the Council.

Luncheons and meetings are held the first and third Monday of each month. At the first meeting for the new year R. R. Suttle, managing director, Southern Gas Association, outlined the objectives for the coming year of the Association, and also led a round-table discussion, "How Reference Manual, 'Modern Gas Service,' recently published by the American Gas Association, may best be used."

Round-table discussions of this type were held at most of the meetings of the previous year and are also scheduled for the ensuing year.



BY RUTH ATWOOD SHANK

*The St. Louis County Gas Co.,  
Webster Groves, Mo.*

Expertly showing and proving to an audience the efficiency and utility of gas and gas appliances—with the words expertly, showing and proving underscored.

The next logical step then seemed to be the breaking down of the lecture demonstration into its component parts. The problem seemingly resolved itself into six units for consideration and training: effective speech, good posture, grooming and personal appearance, the lecture demonstration, and the auditorium.

After reading several books ranging from the ridiculous to the most scholarly treatise I became conscious of a word and a theme which were repeated and given special emphasis by each author. "Dignity" was the word and it amazed me at first. Most of us casually associate dignity in our thought with austerity and a certain gravity of decorum and action. But there is another interpretation—worthiness. The theme of Personal Adequacy is just another way of expressing the idea of worthiness. The authors all agreed that a speech or lecture demonstration could fulfill all of the prescribed rules for expertness of delivery or presentation, and yet fail in its purpose of influencing thought or behavior, if the speaker were a person lacking in those attributes we associate with a good personality.

So when training a new person for this activity we should first include a period for the cultivation of Personality Attitudes and Qualifications.

### Personality Attitudes and Qualifications

We have a list of 25 which we use in our own training program as a rating scale for self-improvement. To give you some idea of what they are and how we use them I will cite 10 of them. These 10 received the most votes as being of first importance when checked by the present members of our department.

1. A definite extrovert personality pattern; in other words, a socialized person who is conscious of others and their needs rather than herself.

2. Intelligence, which interpreted means well informed with the tools of actual knowledge. One who knows the why of phenomena.



## Demonstration Techniques

**Good demonstration lectures can't be organized in a day; practice and careful formation of ideas essential for forceful results**



*Ruth A. Shank*

IN considering how to approach this subject I was reminded of the new draftsman in an engineering department. He was young and struggling with his first assignment; very much confused and frustrated he sat staring helplessly at his drawing board. The supervisor noting the situation asked him what the trouble was and the boy replied that he just couldn't seem to get started. The supervisor suggested that he draw a base line, and continued to explain how all de-

signs grew from a base line. It wasn't long before the new draftsman was completely absorbed in the development of his first design.

It seemed to me that perhaps the "base line" for developing a talk on Demonstration Techniques might be a clear and precise definition of the subject. So I checked to see what Mr. Webster had to say about the two words:

*Demonstration* was defined as proof or a public showing, emphasizing of the salient merits, efficiency or utility of an article or product.

*Technique* was defined as the method or details of procedure essential to expertness of execution of any art, and method was defined as an orderly procedure.

Our definition would then read:

Presented at the Home Service Workshop, American Gas Association, Kansas City, Missouri.



*The home service demonstrator must have poise and know her subject thoroughly*

3. A willingness to assume responsibility, which means carrying your share of the load; of handling your own problems; of helping, not only yourself but others; of being free from the habit of alibis and excuses.

4. Executive ability, which has been defined as "inner drive"—that rare ability of the few to make themselves do those things which lesser men put off to another day. The Chinese have a proverb which expresses it as "Great men have souls; feeble ones have only wishes."

5. Cooperation, which means assuming individual responsibility to find out why things must be done according to agreed plans, which will allow others to carry on with their work, or their program. We hear this word frequently today because there is much discussion about democracy and cooperation is an essential ingredient of the democratic procedure.

6. A sense of organization, which is the ability to plan a program and execute it; to concentrate on the job at hand; to meet time schedules.

7. The ability to adjust to changing conditions. This means keeping mentally young; of refusing to be afraid of new experiences; of holding fast to the spirit of adventure.

8. The ability to give criticism without malice and take criticism without resentment or retaliation.

9. Stamina, or a capacity for steady, orderly, continuous production at a good rate of speed.

10. Cultivate good manners and good will for these form the basis for all harmonious and permanent human relations. The social amenities here, include such attitudes as a generous recognition of human frailties; avoiding bluntness, arrogance and condescension in our contacts with others; of being straight forward, frank, friendly, and congenial without familiarity.

Almost everyone is eager to improve himself. The definitions here recorded merely form "base lines" for setting up goals for achievement and reminders of what we are striving for.

A supervisor sensitive to the individual needs of each member of her department can help by properly assigning these topics for talks to be developed and presented to the department as part of the training program. There is no better way to learn anything than by trying to explain it to others.

There are other valuable lessons to be gained from such an assignment. The girls quickly learn how extensive reading must be in order to prepare even a short talk which is factual and worth listening to. They learn that writing a speech before giving it orally forces them to express nebulous thoughts clearly; to strike out the irrelevant; to subordinate minor points; to drive at the heart of issues and state them without wasting words.

Consciously a speaker expresses his thoughts, unconsciously he reveals his character. Emerson said, "Use what language you will. You can never say anything but what you are."

Aristotle expressed the same thought when he said "As a rule the character of a speaker is the most powerful of all means of expression." So anything one does to cultivate qualities which make people respect him and like him increases his power as a speaker.

### Personal Appearance

Next in importance to personality is personal appearance. Rightly or wrongly it is human nature to appraise personality by the clothes we wear and the way we wear them. If the first glimpse of the speaker is pleasing and acceptable the audience relaxes and is more receptive

to the message. If on the other hand, the appearance of the speaker creates either criticism or amazement in the minds of the audience, it takes a pretty strong personality to overshadow the visual impression she makes.

There are as many schools of thought on the subject of what to wear on the platform as there are home economists. The uniform looks best when there are two or more on the platform. It is also the answer for the girl who doesn't take an interest in clothes and appearance. If there is a better neutralizer of personality than the uniform, I haven't found it.

Then there are those who recommend the house-frock as the right thing to wear. Frankly I think this is psychologically bad, as it reflects an attitude of condescension towards the homemaker, and as for the effect on the speaker, who ever claimed a house frock as a morale builder?

The typical All-American frock, the shirtwaist type of dress, comes closer to being the correct answer. It is adaptable to any type of figure, fabric, or color. Its simplicity lends itself to almost any occasion.

For training aids or factual information on the subject of grooming, almost any beauty salon, cosmetic house, or woman's magazine will provide personal analyses or routines, from the simplest for the career girl crowded for time, to the most complex for the woman seeking a morale-builder.

### Good Posture

Good posture is a definite asset to platform presence; it produces the impression of those positive qualities of aliveness, energy and success. These are qualities which inspire an alert and wide awake interest on the part of the audience. It also lends an atmosphere of smartness which is important to any woman.

Proper breath control is contingent upon good posture which is so essential to poise, smoothness and continuity. A flat chest and shallow breathing so often suggest apathy and a lack of self confidence. So good posture is worth striving for.

### Effective Speech

Effective speech is not for exhibitionism, but for communication. If we keep

constantly in mind that the purpose of speech is to win a response to ideas, we shall cultivate simplicity, sincerity, and naturalness. A good speaker tries to influence his audience to believe, accept, feel, act, or buy something. If he fails, his effort is wasted even though the audience is entertained and applauds.

The person who is training for lecture demonstrations should study carefully the common faults of speech and the methods of correcting them in order to find and remove them in herself. The most common faults result from poor enunciation, incorrect pronunciation, and faulty voice control.

There are many good books on public speaking. After careful study and preparation, it is good practice to have a recording made of the voice in natural conversation. This is a very revealing experience as it is difficult sometimes to have to acknowledge it as your own. But it provides a "base line" for cultivating good speech habits. To develop skill requires real drill-practice. Those who have that "inner-drive" can accomplish this for themselves, while others will benefit most under the guidance of a good teacher.

### The Demonstration Lecture

Our demonstrations in the period just ahead will be most successful if they are based on a pattern similar to class instruction and deal with the fundamental principles of menu planning and food preparation. Trick demonstrations may have a place in purely promotional programs like newspaper cooking schools but our wartime experience with the nutrition and food preservation programs certainly proved that a well prepared program adapted to the needs of our customers, earned a grateful and wholehearted response. I believe we can hold their interest if we study their postwar needs as sincerely and prepare ourselves as thoroughly.

Adequate preparation is essential. Alexander Hamilton said "Men give me credit for genius. All the genius I have lies in this: when I have a subject in hand, I study it profoundly. Day and night it is before me. My mind becomes pervaded with it. Then the efforts that I make are what people are pleased to call the fruits of genius. It is the fruit of labor and thought." This would make

a good motto for the home economist.

You should know as much about the equipment you demonstrate as the manufacturer who produces it, the salesman who sells it, and the service man who repairs it. You should understand as completely about foods and food preparation as the teacher of experimental cookery. Always collect more material and information than you can use. When you have knowledge like this, telling the story is not difficult, but you must also show as well as explain and this requires practice. A polished performance is not achieved until you have learned to coordinate speech with action.

Orderliness is important too. It is well to remember that when your knowledge and materials are not in order, the more you have of them the greater will be your confusion of thought and action. Rehearsal will eliminate this handicap. The audience will be distracted too if in the middle of your discussion of surface cookery the minute chime rings and you have to stop and remove the cake from the oven. Rehearsal will also enable you to determine the best placement of materials to avoid clutter and subdue nervous and unsure movements.

Remember your audience. Make sure they see what you are doing. Be certain they hear what you are saying. The beginner so often talks into the oven or just thinks aloud.

Don't break the continuity of your talk with funny stories. The audience expects an equipment demonstration. They go to the theater for comedy. They come to you for help and advice on their

kitchen management problems. Analyzing the request calls over the telephone will help you to plan the kind of programs your community needs.

### The Auditorium

The ideal setting for Home Service programs would be a room sufficiently large to accommodate the groups in your community; colorful enough to create a cheerful atmosphere and flooded with light free from glare; furnished with chairs—short of rocking comfort but at least designed without malice. Such a room would stand on its own four walls without benefit of columns that obstruct vision. It would be equipped with a platform, high enough to enable the audience in the rear to see without standing and low enough that the speaker does not feel that she is perched on a pedestal. It would be exclusive to the point that the speaker talking about refrigeration is free from the competition of a go-getter salesman selling a water heater. It would have fresh air, neither too warm nor too cold and free from draughts.

A good demonstration lecture does not develop with mushroom growth. It results from setting high goals for achievement and from practice with a definite intention of reaching them; remembering that mere repetition without determination rarely results in improvement.

Home Service has reached a stage of maturity. Are we keeping pace with it?



*Teaching the fundamental principles of food planning and preparation*

# I DIDN'T THINK

BY ERNEST BEAUMONT



I didn't think to watch my step.



I didn't think the wet floor was so slippery.



I didn't think the ladder would slide.

IN nearly every investigation of a personal injury your questions will eventually bring the answer—I *didn't think*. Each step in the job—requires instruction, and complete understanding. These are necessary for efficient work to produce a good job, in the shortest time and without injury. A failure along the line is evidence that some one *didn't think* well on that detail and so is a reflection on the intelligence of those concerned as well as a threat to their safety.

Even in the matter of dog bites which we class as unavoidable due to our limited control over the dogs, there must be some technique which enables some people to forever avoid contributing to Fido's diet. It is suggested that we make moderate but inoffensive noise as we go into customers' premises to arouse the dog—his bark warns of his presence. Face the dog if you encounter one; they seldom attack one who has an apparent

weapon but they are fast and what an invitation to nip the unprotected rear when you decide to run. Ask the customer to lock up the dog—even the poodle—while you work there. After he bites you, it is too late to say, *I didn't think* he was vicious. Twenty per cent of our injuries could be eliminated by *thinking* that every dog may bite.

Another fifteen per cent of our mishaps would be shaved off the record if we develop the habit of the mountain goat who "looks before he leaps." A wider variety of brain power is necessary in preventing falls and such answers as:

*I didn't think* the wet floor was so slippery,

*I didn't think* the ladder would slide,

*I didn't think* my high heels would catch, suggest but a few of the causes of falls. Some folks substitute insecure boxes, stools, or chairs for ladders, others store material on stairs or leave things littered in aisles and walkways. Some will skimp

on light on stairs and many just *don't think* enough of their safety to "watch their step."

*I didn't think* goggles were necessary on that job, is the answer that adds seventeen per cent to our accident record—yet our hardened glass goggles (with prescription lenses when needed) furnish practically absolute protection to our workmen. Several pairs of lenses cracked while at work give annual testimony of eyes saved. Can you think of any good reason why workmen should risk their eyes? A lost eye would cost the Company a considerable sum but despite a lean pocketbook, I wouldn't sell mine for that—would you?

Another ten per cent of our folks *didn't think* careful handling of material was important to their safety and when the item was dropped their ribs or shins, etc. couldn't stand the gaff. Seven per cent more *didn't think* to look where they were going so that serious bruising injuries resulted and another seven per

Reprinted from "Gas News" published by The Peoples Gas Light and Coke Co., Chicago.

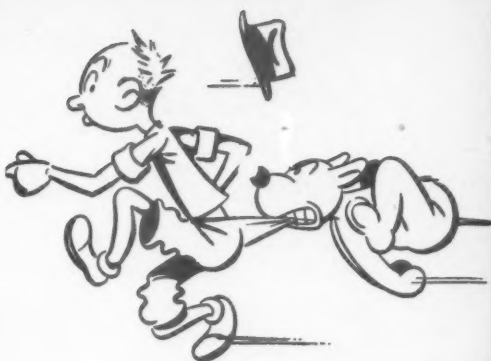




I didn't think my high heels would "throw" me.



I didn't think I needed my safety goggles.



I didn't think that dog would bite.



I didn't think to watch where I was standing.

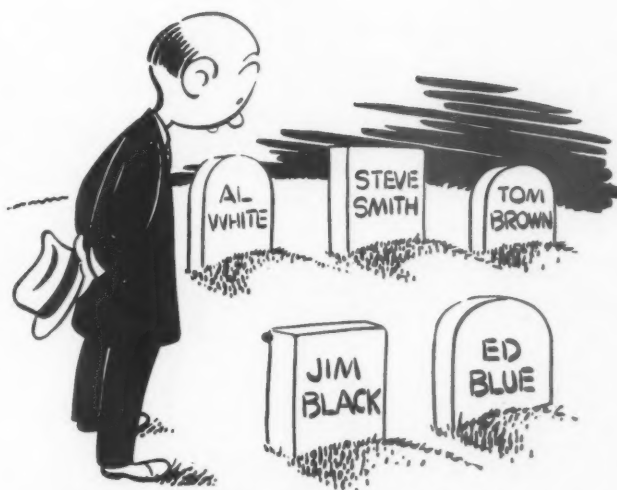


I didn't think first aid was so important.

cent *didn't think* of the hazard in sharp tools.

Only twenty-four per cent of our accident experience remains to be accounted for and these resulted from a wide variety of thoughtless acts. Some *didn't think* rubbish was a hazard until they stepped on nails hidden by the debris; some *didn't think* good tools were essential until slippage and breakage and injury proved it; some *didn't think* first aid was important and infections resulted and one *didn't think* that one end of a bee could be so sweet and the other end so bitter. Don't laugh, it ain't funny, McGee. Those who *don't think* are constantly tempting fate to "sting" them with an accident.

The thoughtless worker is digging the "rut" which grooves his whole life to limited progress. But more than that *thinking* will add to his enjoyment as well as his advancement and it will enable him to do his work more easily, more efficiently and more safely. It does pay to *think*.



Goodness Gracious looks over a few victims who forgot to think.

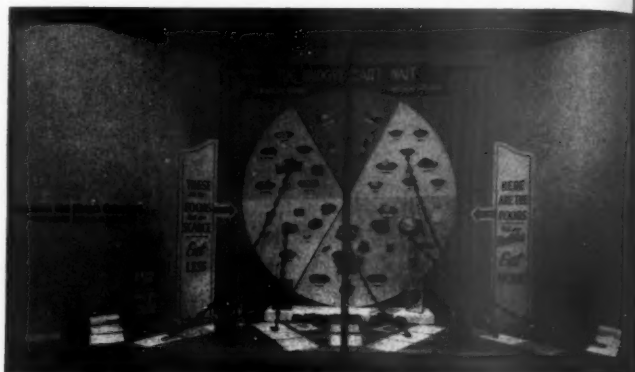
# So That They May Live

The gas industry continues to do its part  
for starving millions all over the world

ANSWERING the call for help to the starving peoples of the world, the gas industry participated wholeheartedly in bringing to the attention of the public the seriousness and necessity of home canning, victory gardens and total food conservation. Home service departments have devoted many demonstrations to furthering the program and have developed recipes and menus utilizing more abundant foods. Gas companies designed appropriate window displays and contributed advertising space in newspapers. To show all of the displays and advertisements would be impossible but those shown here indicate the general trend.



Milwaukee Gas Light Company, Milwaukee, Wis.



Fall River Gas Works Company, Fall River, Mass.



Above: Michigan Consolidated Gas Company, Detroit, Mich.  
Below: Boston Consolidated Gas Company, Boston, Mass.



Above: Consumers Power Company of Jackson, Mich.  
Below: New Orleans Public Service Company, New Orleans, La.



# Natural Gas Home Study Course

After thirteen successful years, the pioneering home study course at the University of Kansas is going strong and has demonstrated its fundamental soundness

Thirteen years ago at the request of the American Gas Association, The University of Kansas established the Home Study Course on Natural Gas. The course was prepared and is conducted by C. M. Young, Professor of Mining Engineering, who has earned the respect and friendship of the many gas men who have taken it. Professor Young has reached retirement age and this is his last year of active work at the University. He will, however, continue to supervise the conduct of the Natural Gas Course when he returns to his home in Hiram, Ohio. The many gas men who have taken the course and those who are seeking further knowledge of natural gas operations will be particularly interested in this article written, with modest reluctance, by Professor Young.

THE Home Study Course on Natural Gas has been in operation for about thirteen years. About fifteen years ago it was felt that the time had come in the development of the natural gas industry when it was desirable to offer to men actively engaged in the industry an opportunity to extend their knowledge, especially in the fundamentals. This program was intended for men who could not leave their work for attendance at schools, but who could work at home if they had material and guidance.

After an examination of the agencies which might be in position to carry on such work, the American Gas Association brought to the University of Kansas a proposal that the University should prepare and conduct a Home Study Course on Natural Gas, and the University accepted the invitation.

The Association offered to give all possible help in the preparation of the course and in bringing it to the attention of the men who might be benefitted by it, but it wished to be entirely free from details of handling the work of students. On its part the University offered to conduct the work without profit, but as part of its program of public service. When it was found that the cost was somewhat less than the first estimate, the price was reduced and the proper amount was refunded to those who had paid the original price.

BY C. M. YOUNG

*Professor of Mining Engineering,  
The University of Kansas,  
Lawrence, Kansas*

Since no adequate book on the subject was in existence, it was necessary to prepare one which would come as near as possible to meeting the needs of the situation. It was realized at the beginning that no one person could accomplish the task without great assistance. To aid in the work and to insure that the material prepared would meet the needs of the industry, the Association appointed an advisory committee. The members of this committee were among the men most eminent in various phases of natural gas production, transportation and distribution. They not only examined the material which was prepared but they supplied much information which was not readily available. Going beyond this, they brought into the work many persons who were well-fitted by training and experience to supply additional material and to criticize various parts of the manuscript when it had been assembled. To a very considerable extent then, the authorship of the work is to be ascribed to the men in the industry who have been most responsible

for its development.

After thorough consideration it was decided that this work should not deal with company organization and financing or with rates, but should be confined to the physical aspects of the industry, that is to prospecting, production, transportation, distribution, measurement and utilization, and to the various subjects which needed to be treated under these main topics.

At once some limitation on the scope of the work was suggested by the capacity of the students for whom it was first intended. It was assumed that most of those who would take the course would not have been educated as engineers but would have completed their work in high school. For this reason an effort was made to make the treatment of the various subjects as simple as it could be without sacrifice of accuracy; and also to give a consecutive development of the subject so that one paragraph would lead naturally to another.

It was not possible to treat all phases of the subject in a simple way, but it was hoped that the discussions given were of such nature that they could be understood by persons having the preparation mentioned above. While it has been found true that the majority of students belonged to this class, it has also



*Professor Young*

PROFESSOR YOUNG is a native of Ohio. He received the degree of Bachelor of Science from Hiram College, then the degree of Bachelor of Science in Mining Engineering from Case School of Applied Science and later the professional degree of Engineer of Mines from the same school. Most of his professional life has been spent at the University of Kansas, but there was a preliminary period of two years on the development of a new metallurgical process, and two

interludes. The first interlude was broken into three parts. First as Specialist in Mining Engineering for the U. S. Engineer Office in the Pittsburg district. The U. S. Engineer Office is the engineering branch of the Department of War. The work was an investigation of acid pollution of streams in the Pittsburg district. This was followed by positions as Editor of the "Colliery Engineer" and Associate Editor of "Coal Age." Then he spent three and one-half years as Associate Professor of Mining Research at the University of Illinois, where he was engaged in various investigations of coal mining in that state. The second interlude was spent on war work as Mining Engineer in the U. S. Bureau of Mines. For about thirty years his principal interests have been in the mineral fuels, and the last fifteen years have been devoted mostly to natural gas.

been found possible for some persons with less than a complete high-school education to do the work satisfactorily if they were willing to give enough time and energy to it and had the ability to study.

Also, to our surprise, we found among the students a considerable number of executives of gas companies and among them a large proportion had completed college or university educations, and a considerable number had been trained as engineers and also had had extensive experience. Men in this class have taken the work for the purpose of refreshing their knowledge or of extending it beyond the limit of their immediate experience in order to get a picture of the industry as a whole. One such man said that he was using the text as a guide and writing his own book on natural gas as he went along. It was a good book. Among the very recent enrollments (winter of 1945-46) are two chemical engineers, one of whom has been associated during most of his life with the manufactured gas industry, and the other of whom had had a broad experience in natural gas.

Not all of the students have been engineers or prospective engineers. One was a lawyer. When he failed to send in papers we asked him what was the matter he replied that he might send them in sometime, but that what he really wanted was the text and he had already got his money's worth. One was the secretary of a gas company executive who wanted to know what it was all

about. One was a Japanese, and this was long before we had any active trouble with that country. No papers came in and we decided that what he wanted was the text so that a translation could be made.

One thing which was decided upon early in the work was that we would take as few "yes" or "no" answers as possible, but would ask for full discussions of subjects. The idea back of this was that each student should be treated as an individual as far as the physical limitations of correspondence work permitted. There are some important differences between residence work and correspondence work and not all of them are disadvantageous to the latter. It is true that there is not the opportunity for the give and take of the classroom or for the stimulation which a good teacher can give. But the fact that the correspondence student has to rely almost entirely upon his own thoroughness and determination is sometimes an advantage. When he realizes that he ought to convince himself, as well as us, that he has mastered any portion of the subject by writing out a full discussion of it, he has learned what we consider the correct method of carrying on this work. We have had occasion to tell students that their papers were too short to do themselves justice, but I think we have never told a student that his papers were too long. With this policy there is no drudgery in reading papers for no two on the same subject will be the same; and the students really work.

Another policy which was adopted early was that of inviting questions, not only from students currently engaged in the work but from those who had completed it. There are a great many things about the gas industry which we do not know, but we have sometimes been able to give answers to questions in such a way as to be of some assistance. It is not always successful; for example a student sent in a mathematical discussion of a transportation problem. We questioned his mathematics but he decided to publish a paper and unfortunately it was criticized because of an error. And the students tell us interesting things. One calls attention to papers he has written on the effect of differences in elevation on pipeline performance; one sends charts he has prepared for solving a pipeline formula; one sends the design of a drip; one tells how he built a thermostat for his furnace.

The natural gas industry is far from static; it has changed rapidly since the work on this course was begun and no one now knows what its future will be. The fundamentals of this industry, which are discussed in the text, are well established, but some of the details have changed greatly. It seems inadvisable to attempt to keep pace with these changes by revisions of the text, but some of those phases in which the greatest changes have occurred have been discussed in supplements. To illustrate; when the text (*Continued on page 415*)

## The Care and Feeding of Presidents

● For success in dealing with presidents observe these rules:

1. Go to presidents with decisions, not for decisions;
2. Go to presidents with fundamentals, not with details;
3. Be clear, concise, complete, convincing;
4. Be prepared;
5. Be brief!

Fundamentals are determined by ideas. The company that sells the ideas has a good chance of selling the goods.

Ideas that appeal to presidents follow the patterns of their thinking and doing:

1. Presidents think and plan further ahead;
2. Presidents "see" in terms of figures, percentages, ratios, charts, graphs, balance sheets, costs, taxes, profits, surpluses, and dividends;
3. Presidents like ideas that make for efficiency, time saving, cost saving, a better and more appealing product, more sales;
4. Presidents welcome ideas that make for better employee and public relations;
5. Presidents are persuaded by prestige and standing as well as by technical or scientific superiorities;
6. Presidents buy wholesale . . . they buy overall better lighting . . . not a single bulb; they buy plant modernization . . . not a single machine;

7. Presidents' thoughts and actions range the entire field of business: production, marketing, financing, management; in many respects they are all-seeing, all-knowing, all-doing;

8. Presidents embrace ideas and make their decisions on the basis of experience, judgment, departmental recommendations; and, sometimes, by intuition, hunch, tossing a coin, or for purely personal or emotional reasons, . . . ignoring the persuasion of science or facts . . . seldom enough to prove that they usually are wise and often enough to show that they are human.

If you want action from your advertising to Presidents tell your story in your headlines and illustrations; executives seldom take the time to read a "clever" or "intriguing" advertisement down to the last line to find out what it is all about!

—Dun's Review



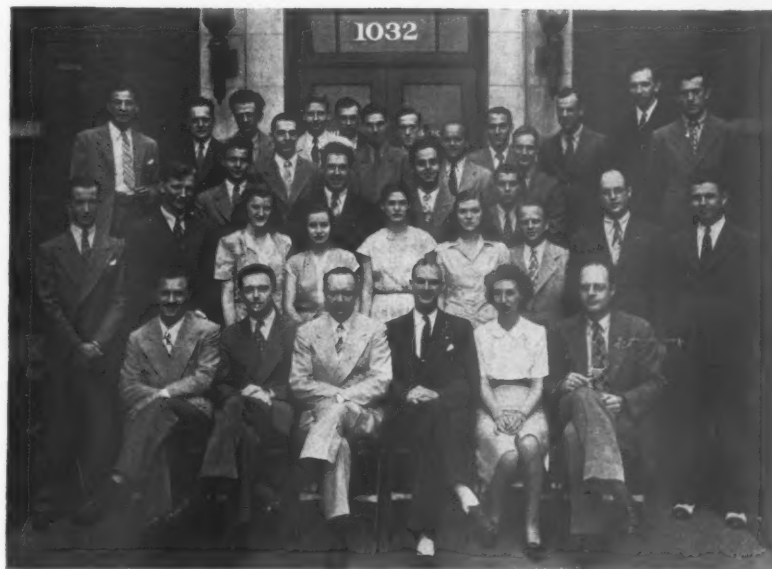
# Laboratories Open Research Center

Sharp rise in appliance testing operations plus 180% increase in gas research projects brings expansion of facilities at Association's Cleveland Laboratories

**O**PENING of a new research center adjoining the Cleveland Testing Laboratories of the American Gas Association on August 1 initiated another phase of the Laboratories Managing Committee's plan for step by step matching of testing and research facilities with the expanding needs of the gas industry.

Adding approximately 6,000 square feet of additional floor space to 3,000 square feet reconverted from war activities to testing purposes last fall, the move makes possible efficient direction of rapidly expanding research and testing activities. Space vacated in the main building is being assigned to appliance testing and to provision of additional private test rooms for manufacturers which formerly had been reduced in number due to space limitations.

Although manufacturers have not been able to swing into full postwar production of gas equipment, testing activities during June had climbed from a third of normal for last year to a level equal to the normal pre-war rate. This represents an increase of more than



*Research staff at the Association's Cleveland Laboratories*

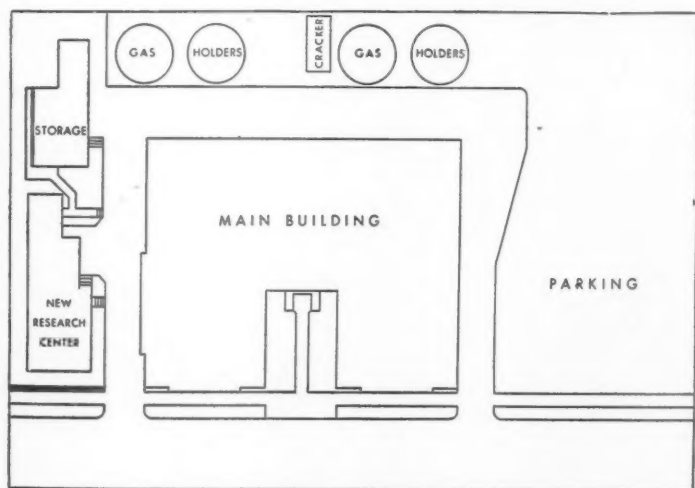
200% which when projected over the balance of the Association year would bring the annual volume of appliances and accessories tested above 3,000. Production of gas equipment on a full and

unrestrained basis undoubtedly will raise testing activities to the highest level in history.

Current research operations, up 33% over last year, under the Association's accelerated research program have increased 180% over the pre-war level and likewise require additional floor space. Both testing and research operations are expected to be further increased during the coming year.

The additional floor space opened is expected to serve these anticipated needs. It is based on a conservative forecast of expected service demands upon the Laboratories. As seen in the accompanying layout, the new research center makes immediate use of a frame structure, acquired last year together with additional real estate purchased for the construction of a new wing to the Laboratories, as part of a long-range expansion program.

The front structure was remodeled for research activities and a second



*Location plan of main Cleveland Laboratories and newly opened buildings*



*Corner of chemical analysis room. Adsorption fractionator at right analyzes all fuel gases*

building directly behind it renovated for storage purposes. Two other frame structures are located on the property and can be used if the need arises.

The majority of domestic gas research projects and investigational activities necessary in the preparation of requirements will be conducted in the new center. Mixed gas research will be accommodated in the main building where it will have additional space for carrying out its recently enlarged program.

The domestic program is in charge of Walter B. Kirk and the requirements program is under the supervision of Frank E. Hodgdon. Both are returned veterans and will have their offices in the newly remodelled building. During the year a number of other experienced former staff members have returned from military service while at the same time additional engineers of experience and training above the graduate level

have been employed. A total of 35 engineers are now engaged in research work.

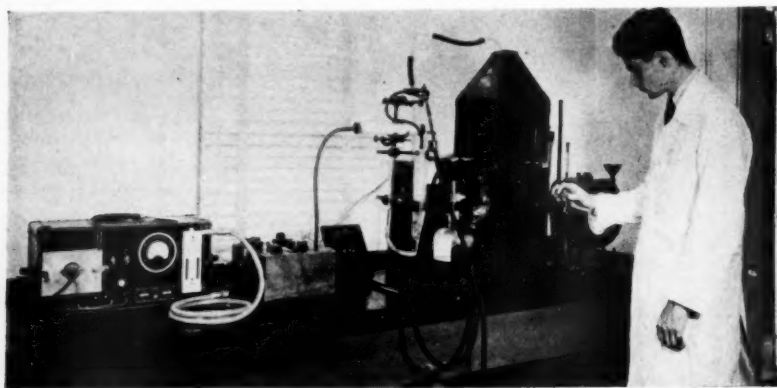
Procurement of additional scientific instruments and equipment has been achieved and will make possible more efficient and effective use of expanded floor space, eliminating delays due to duplicate use of the same equipment for several activities. Sixteen additional gas stations are available in the new quarters, each supplying four test gases as well as compressed air and water.

### Additional Equipment

Additional equipment includes new meters, electronic temperature indicator, calorimeter, portable carbon monoxide recorder, specific gravity indicators, air-gas ratio analyzers, indicating potentiometers, and an adsorption fractionator. The fractionator completely analyzes all fuel gases including the breakdown of unsaturated hydrocarbons.

The center incorporates its own gas analysis room, relieving the heavy burden of the main building chemical section and making possible speedier test service. A new method of analyzing flue gases is under study at the present time as a possible means of speeding up the chemical analysis of gases for research purposes.

Opening of the new research center together with the reconversion of main building space from war to testing activities last fall, is expected to meet all present demands for service. Furthermore the over-all expansion program places the Laboratories in an excellent position to keep pace with future developments.



*Investigating effects of flame impingement on combustion*

## Tennessee Gas Plans New Facilities

**T**ENNESSEE Gas & Transmission Co. plans to start constructing immediately new facilities designed to increase by 118,000,000 cubic feet daily the carrying capacity of its 1,265-mile natural gas pipe line from Driscoll, Texas, to Cornwell, West Virginia.

The project, recently approved by the Federal Power Commission, calls for 410 miles of looping and feeder lines, new compressor stations and construction of a ninety-five-mile line linking the system with the San Salvador field in Texas. It will cost an estimated \$30,000,000 and is expected to take a year to complete.

The construction program will increase the system's capacity to about 380,000,000 cubic feet daily. The increased supply will be allocated to Columbia Gas & Electric Corp., and Hope Natural Gas Co., a subsidiary of Consolidated Natural Gas Co., probably on a fifty-fifty basis.

## More Natural Gas For Cleveland

**T**HE Federal Power Commission has authorized the East Ohio Gas Co., Cleveland, Ohio, to construct and operate a 144 mile pipeline extending from Hope Natural Gas Company's outlet at the Ohio-West Virginia state line to the outskirts of Cleveland. Cost is estimated at \$4,620,000.

The proposed line is for the purpose of increasing Cleveland's natural gas supply from Hope Natural Gas Co., to meet consumers requirements which the company estimates reached a daily maximum of 435,000,000 cubic feet during the last winter. Present delivery capacity is 355,000,000 cubic feet daily. The line will have initial capacity of 119,000,000 cubic feet of gas daily.

## Type "B" Approved Vent Materials

**W**ITH the resumption of housing construction, there is increased interest in the availability of Type "B" chimney materials, and their use is described in detail in the Building Code of the National Board of Fire Underwriters. There is also available from the American Gas Association, upon request, copies of Bulletin No. 114 of the N. B. F. U. which describes this type of chimney material.

At the present time the Underwriters Laboratory lists the following manufacturers as producers of approved materials for this type of chimney construction:

Johns-Manville Co., Inc., 22 East 40th St., New York, N. Y.  
 Pavne Furnace & Supply Co., 338 N. Foothill Rd., Beverly Hills, Calif.  
 Williams-Wallace Co., 160 Hooper Street, San Francisco, Calif.  
 Condensation Engrg. Co., 122 S. Michigan Blvd., Chicago, Ill.  
 F. X. Enderlee Inc., Los Angeles, Calif.  
 J. L. Halstead, South Gate, California.

# Speaking of Gas . . .

By J. E. Drew

ASST PROMOTIONAL DIRECTOR • AMERICAN GAS ASSOCIATION

**S**POT checks around the country reveal that almost everyone is talking about the gas business except those in the business. People have been asking questions about gas and getting answers—too many of them wrong. It's high time we met misrepresentation with truth, theory with fact, and extravagant claims with proven performance. Let's make the voice of the gas industry heard in those places where public opinion is formed!

And there are many such places in every community—the schools, service clubs, women's organizations, veterans' posts, civic leagues, trade associations, professional bodies, youth groups, and scores of other organizations. Gas company speakers are welcome at these groups and invitations are readily available as someone from the company is usually a member of each of these organizations or knows the program chairman or some officer. Mere mention of the fact that an interesting and qualified speaker is available brings joy to the heart of the average program chairman. Lacking the personal relationship, a simple letter offering the services of a speaker invariably receives a cordial reception.

The industry is admirably equipped to do a versatile, interesting and profitable speaking job. We have men and women who can address almost any kind of audience. We should take advantage of these talents and not depend upon the willing few to carry the load. There is a definite audience demand for top management and there are many influential groups waiting to hear the engineer, the home economist, the sales manager, the treasurer, the advertising manager, the accountant, and other key figures on the organization chart of each company.

The topics available for discussion by gas company speakers are timely, varied and interesting. Anything on housing, with particular reference to the place of gas in the modern home, is an intriguing subject for many groups ranging from G.I.'s to architects and builders. Bankers will sit on the edge of their seats when you talk about appliance financing. Dealers want to know about

new products, new methods and new sales plans. Civic groups are concerned about the industrial and commercial development of their city. Women's organizations are booking speakers on food preservation, modern cookery, health and beauty. Schools need speakers on modern developments, both scientific and in the field of home economics.

Business men are eager for your ideas on merchandising, advertising, production and distribution. Many want your opinion on matters affecting the national economy. All America will listen when you talk about those things that mean greater comfort, more convenience, better health, and happier living.

The importance of public speaking as an effective method for building good public relations and promoting sales has been recognized by the Promotional Committee of the Association. Operating through the Promotional Bureau it is now seeking to stimulate and coordinate this important activity throughout the entire industry.

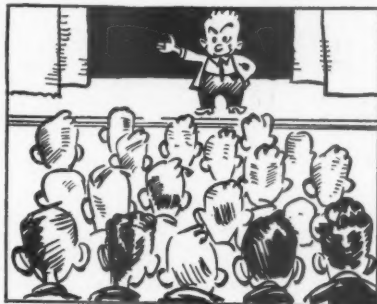
The Bureau will operate on three levels. Nationally, it will attempt to obtain places for our speakers at the conventions of allied industries and other groups whose knowledge and understanding of the gas industry is important to the success of our work.

Regionally, it will act as a clearing house for advance information regarding such meetings scheduled for territories covered by regional associations and the various gas companies.

Locally, it will provide a helpful service to each gas company by making available speech material about gas and its uses which will benefit the people of the community. This will include speech guides, booking suggestions, specimen talks, and on request, specially prepared outlines. Much of this material will appear in the Bureau's Bulletins.

The Promotional Bureau will not duplicate the work now being done by any organization nor will it interfere with local programs. Its sole objectives are to be helpful to each company and each association and to make the voice of the gas industry heard in thousands of important groups throughout the nation.

Let's start talking about gas!



# A Stage that Commands

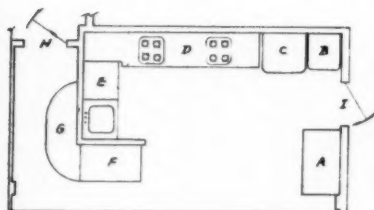
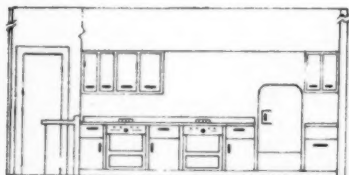
Compact and complete this new theatre-type auditorium is a fitting setting for a modern gas equipment demonstration

BY ANNE V. McMANUS

Home Service Director, The East Ohio Gas Co., Cleveland, Ohio

THE first of the year, The East Ohio Gas Company completed a theatre-type auditorium which is one of the finest in the country. It is one of the projects that the company had planned for the postwar period.

A modern all-gas kitchen commands the stage. The equipment in this kitchen consists of a cabinet-type water heater,



A-DEMONSTRATION TABLE (MOVABLE)  
B-CABINET TYPE WATER HEATER  
C-SERVICE REFRIGERATOR  
D-CUSTOM BUILT UNIT - CABINET AND TWO FOUR BURNER COOKERS  
E-DISHWASHER AND DISPOSAL  
F-DEMONSTRATION RANGE  
G-BREAKFAST TABLE  
H-ENTRANCE TO SUPPLY ROOM  
I-ENTRANCE TO KITCHEN

Layout of Auditorium kitchen



East Ohio's theatre-type auditorium is attracting many visitors

a gas refrigerator, gas ranges, an automatic dishwasher and disposal unit, a specifically constructed demonstration table, wall cabinets and a breakfast nook.

The back wall of the kitchen has two unusual features:

1. A cabinet-type automatic water heater, which is placed next to the entrance and serves a dual purpose
  - a. as a receiving table for groceries
  - b. to supply the hot water requirements of the automatic dishwasher.
2. The combination steel base cabinets and two gas ranges in a custom-built section, which is covered with a solid, stainless steel work-top. Overhead steel cabinets, with an open wall space, complete the back wall picture.

The automatic dishwasher and disposal unit placed at right angles on the stage divide the platform so that a breakfast nook could be installed. The automatic "CP" standard-size range was placed in the foreground of the stage in order to enable the audience to have a complete view of the food during the baking and cooking process. This range is equipped with a glass oven door, and a light in the oven. The demonstration table is custom-built, with two steel-base cabinets under a solid linoleum work top, and is mounted on casters so that it may be moved to one side when not in use.

The auditorium has a seating capacity

of 100. The back entrance is three feet higher than the platform, giving an incline to the seating arrangement for each person to have a clear view of the stage. The seats are of modern steel frame, cushion-type construction. Ceiling, back and side walls have acoustical tile treatment, and installed on the ceiling is a roll-type motion picture screen to be used for visual education. The floor covering is cork, and the aisles and passageways are carpeted.

The auditorium provides a restful atmosphere with its pastel color scheme of coral, beige and light green. The aisles have subtly-patterned beige carpet, and the very comfortable seats of buff-colored metal are upholstered with lush coral leather. Quiet dignity reflects itself from a five-foot, satin-wood finish dado lining all three walls.

Forest green linoleum accentuates the gleaming white of the kitchen equipment. The side walls are painted sea-foam green. Wallpaper with this same green background and a gay design of fruit picks up the coral tones of the seats. The wallpaper serves a two-fold purpose: besides being decorative it reduces the height of the ceiling, making the appliances proportional to the setting. Additional touches are furnished by bracketed plants, gayly painted hanging plates and a wall mirror.

Since Febru- (Continued on page 415)



# Good Industrial Relations

Smooth industrial relations are the by-products of good leadership, and the supervisor's role is an extremely important one

BY ELLIS O. KELLER

*Supervisor of Training, The  
Philadelphia Co., Pittsburgh, Pa.*

**B**ECAUSE so many of us tend to consider the problem of good industrial relations as separate and apart from the whole job of good management, it seems appropriate for me at the outset to touch upon the meaning of the term, "good industrial relations" as I understand it. To illustrate exactly what I mean, let me relate an incident:

A friend of mine was asked to recommend an industrial relations manager to the head of a rather well-known company. After describing the qualifications of the man desired, the president summed it all up by saying, "What we want is a man who can guarantee us that we will not have labor trouble."

For almost thirty years this executive had been concerned about the marketing, production and financial success of his business. Now for the first time he was concerned over the prospects of labor trouble. The normal problems of the business, and the "labor situation" were two separate problems in his mind; virtually in two separate worlds. To do something that might promote good labor relations was of interest to him only to the extent that it was necessary to prevent interruption of production. What he wanted was someone to take over the responsibility for labor relations so that he could divest himself of the problem, and go about his normal and regular job of running the business. Needless to say, my friend was unable to recommend a man who could meet such requirements.

If there is any contribution I can make it lies perhaps in a brief expansion of the simple statement that good industrial relations and good management are one and the same thing. I know of no function, no activity in industry which we can lay hold of and say

definitely, "This is the personnel function." I know of no program or programs of activities which we can superimpose upon an employee body, and say, "These are industrial relations programs."

Attempts were made back in the early twenties to create this artificial separation when paternalism, and the personnel specialist, and the social service department were the vogue. In reality, there is very little which must be added to the management structure, and to the present programs of a company to assure good industrial relations. There should be no necessity for an elaborate and expensive industrial relations department.

I have maintained for many years that industrial relations are good or

bad according to how well each activity in the whole business operates. Good relationships are an integral part of each job from president to gang foreman; from chief engineer to office boy. In brief, good industrial relations are the result, not of the new things we do, but of the way we do all of the things we are already doing. Good industrial relations are the result of the way we set up our wage structure; the way we introduce changes in it; the way we relate production decline to lay-offs; the way we handle cases of discipline; and the way we grant raises, and make promotions or demotions.

Nor does the answer to good industrial relations lie solely in these matters. It goes deeper into the basic



Presented at the A. G. A. Distribution Conference,  
Chicago, Illinois, April 15-17, 1946.

operations of the business. It involves, for example, the care we take to see that one shift leaves things in proper order so that the next shift does not lose time in getting started. It reaches into the tool room where workers may be forced to use wornout tools because the tool-room clerk slipped in keeping his stock properly replaced. It reaches again into the tool room where workers may be nervous and mentally upset because of the presence of a supervisor who irritates them so that they cannot think clearly in calling for the correct list of tools and material.

### Factors in Good Relations

It depends on how seriously we try to forecast our production requirements so that sharp changes may be avoided wherever possible. It depends upon how much interest we develop in our employees to serve our real boss, the customer. It depends on how good a sales job we do to bring in new customers without which there would be no employment. It also depends on how stable a financial basis we maintain for a financial enterprise. All of these things, and many more contribute to good or bad industrial relations. The *way* the whole business is run determines the answer. Good management and good industrial relations are inseparable. They are one and the same thing.

If we accept this basic concept it becomes obvious that proper policy and practice must be an integral part of the whole program. This becomes a matter of leadership. It is the *way* foremen treat workers in relation to all these matters; the *way* the superintendent treats the foremen; and finally, the *way* a general manager or a president handles his own staff in order that right attitudes and right methods may exist toward the entire organization. There is no activity nor individual in the business who is not affected

if we are to manage so that good industrial relations result. Perhaps you feel that the implications I have outlined are too broad. I think part of our difficulty lies in the consideration of industrial relations which are too narrow. As we examine the *way* we manage, I am sure we will all agree that the starting point is a scrutiny of our policies.

### Causes of Dissatisfaction

In order to establish a common basis of understanding I would like to define a policy as a principle or fundamental intention on which we base our plans of action. Certainly, the principles and fundamental intentions of management underlie everything we do so that there is no other basic point from which to begin. I submit to you, further, that dissatisfaction in the working forces occurs generally under one or both of two conditions:

(1) When our policies are not right in terms of modern, contemporary standards, or

(2) When the leadership within the company is less effective in administering these policies to the workers than outside forces are in selling contrary policies to them.

This may appear at first thought to be a simplification of a major complex problem, but as we think over everything we do in this field, it soon becomes clear that there is scarcely any other answer. We have labor dissatisfaction either when our policies are wrong, or when they are poorly or weakly administered. Policy making and policy administration are major functions of management, and as we gradually perfect our management technique we hope to progress toward a better solution of our industrial relations problems.

### Policies—The Extremes

Let us consider, therefore, this subject of getting our policies right. This is a far reaching question, so I suggest that we consider it from a broad basis. At one extremity there are such instances as sub-prevailing wage rates (either for the industry, or for the area); unsafe practices; favoritism; nepotism; lack of proper sanitary and hygienic facilities; disregard of personal welfare of employees; disadvantageous regulations; class, racial, or

religious discriminations; and paternalistic or die-hard tendencies. There are others, but these are typical.

Most of these practices are no longer condoned in the average American industry. Yet, this observation holds true only for the present. As recently as thirty years ago they were all generally accepted in some industries without much question. There is no "fixed" standard for "right" policies. Standards change from generation to generation. Those of us who saw the homes and working conditions of our European neighbors during the recent world catastrophe had that fact brought home to us. European standards for the most part were set up generations ago, and have remained fixed, but we pride ourselves that in America the standards themselves are constantly improving. So we class out-moded policies under the heading of exploitation—and properly so.

### Abolish Out-Moded Policies

Needless to say, if any of us are allowing any of these things to continue in our companies, we are not just out of tune with the times; we are acting in our own worst interests. It appears to be the practice of some managements to permit an admittedly out-moded policy to remain in effect until the representatives of their employees demand a change at the bargaining table. A poor policy is retained as something to be used as a bartering medium. Would these same gentlemen permit an unsound, or unsafe practice in their homes until such time as their children grow old enough or become intelligent enough to protest? The answer is obvious.

At the other extremity is a policy of weakness. We can get too soft just as easily, as, in some instances, we have been too hard. The management of General Motors anticipated this situation when they issued their first public statement on labor policy in 1933. In discussing collective bargaining, they pointed out that "It does not mean employer-employee management, but must be limited to employer-employee relationships. There is a distinct difference between the two." It might be pertinent at this time to comment that the management of General Motors appears not to have retreated from that opinion.

## Reconversion

● 1941—The customer was always right.

1942-1944—The customer was always left.

1946—Unless you make the customer right, you won't have a customer left!

—Sales Maker.

When management surrenders those prerogatives which, by their very nature, belong to the management alone, we can call this "weakness." We can be weak in other ways. We can become frightened when crises arise, and raise wages too freely, agree to bene-

fits, start precedents which are not for the best long-term interests of the enterprise itself, or we can be *afraid* to do sensible, constructive things lest someone will get a false impression. Ultimately, management, employees, stockholders, customers, and public-

in-general suffer. Therefore, between being too hard on the one hand, and too soft on the other, we face the necessity of defining right policy down a sound course between these two extremes. Just what this sound course should be becomes clear as we understand fully the unsoundness of extremes.

## Ten commandments for top executives

by Harry Simmons  
Sales Consultant

MANPOWER DIRECTION IS STILL the top executive's major problem. No matter how many new-fangled novelties he works into his operations, he cannot get too far away from the good old-fashioned clichés of his fathers. No matter how "corny" you call them, they are still as true as "the law of the Medes and the Persians, which altereth not."



### I.

*Inspire by precept rather than by preaching.* The best teacher is one who uses first-person examples rather than third-person regulations.

### II.

*Don't talk down or look down on your men.* If you want your men to look up to you, you will have to do the same to your men.

### III.

*Keep out of office politics and keep politics out of your operations.* To build men for the future, you've got to play fair today.

### IV.

*Build human relations from the inside out.* It's the humanness you put into your organization that returns loyalty to you. There is still no substitute for courtesy, decency, and understanding.

### V.

*Correction by suggestion beats instruction by criticism.* You get back only what you give out. To develop go-getters, you will have to be a go-giver.

### VI.

*Don't be a careless promiser.* Say what you can do, and do what you promise. Wouldn't you want others to do likewise?

### VII.

*Don't be carried away by third-party criticisms.* There are always two sides to every story. Men who like to criticize are usually careless about the accuracy of their remarks.

### VIII.

*Don't try to be too hard-boiled.* It is well to remember that you are dealing with human beings, not automatons.

### IX.

*Persuade your men to help rather than order them to perform.* It is one thing to have men work with you, and quite another to have them work for you.

### X.

*Be specific in your assignments and keep mystery out of your requests.* If you want a job done a certain way, explain your preference in advance rather than after a lot of hard work has flowed over the dam.



## Policies—Sound, Firm, and Open

Therefore, we turn to the center road, and to what can be termed "the tenets of industrial capitalism." Broadly—and very broadly—I suggest that industrial capitalism (you may call it "free enterprise") means four things;

1. The purpose of business through the proceeds of profitable enterprise is to provide an ever higher standard of living for people; in our case, the American people.

2. Management must give better products at lower costs in order that the greatest number of people may enjoy their use.

3. Each individual has a right to a standard of living commensurate with the contribution he makes to the standard of all.

4. Management must see that its policies and practices give each individual the opportunity to achieve his rightful standard.

Henry Ford has put it this way: The American System "is to pay higher wages; to give buyers more value; to find methods that will be less expensive; to keep prices and profits low in order that volume, wages and service may be high." These statements are admittedly general and philosophical, but perhaps they do serve as an aid to judgment.

It is not possible to cite the specific policies which belong in this center of the road, because this subject alone requires a full day's discussion. However, it is not an impossible task to determine what are good, acceptable, contemporary policies. Executives, industrial relations men and research groups all over the United States have given, and are still giving intensive study to this problem. Any executive who really would like to know, can consult one of a various number of agencies:

American Management Association,

Reproduced from *Printers' Ink*

National Industrial Conference Board, Incorporated,  
National Research Bureau, Inc., Chicago,

are but three of many organizations engaged in this research. So, it is possible, as possible as anything can be in this vast, moving area, to bring our policies into alignment, and to keep them where our position is sound and defensible in terms of contemporary standards. Needless to say, unless our policies are right, and our position entirely defensible, there is not much we can do to achieve good industrial relations.

One last note on policies. It was, at one time, the practice of some companies to have three sets of policies,

or rather policies divided into three categories:

1. Those that were shown to all employees.
2. Those that were given only to the supervisory force.
3. Those that were known only by top administrators and executives.

A company is usually kidding only itself when it thinks such matters can be kept "hush-hush." Sooner or later such a practice will end in embarrassment for management. Better have all policies open and above board so that you cannot be accused of sitting in the game with something up your sleeve.

Once we have our policies right we turn to the other condition under

which employee dissatisfaction can occur; that is, when the leadership within the company is less effective in administering these policies to the employees than leadership outside the company is in selling them contrary points of view. This leadership within the company is expressed in the way we live our day to day operations, and not in the doing of superficial things such as the distribution of pamphlets, the use of payroll enclosures, or the organization of a baseball league. It is basically again the way we carry on. Let us turn to one or two common problems, and examine the manner in which they are treated. They will serve, perhaps, to illustrate our point as it should be applied to all operations.

### Bases of Pay

Let us take one of the toughest ones first—the matter of wages. We will assume that we have met the first requisite—that our policy is right. We have made certain that our wage levels and wage systems are right in terms of good contemporary standards; but how is the wage system to be installed? When the jobs are being evaluated, do the workers know the reasons for the evaluation? By "reasons" I mean something broader, more fundamental than the erroneous opinion that the company wants to step up production and cut rates. After each job's base rate is set in relation to those of the other jobs, are the workers concerned allowed to see the job study sheets, and become convinced that their jobs have been fairly evaluated? Will the job be re-studied if the worker feels strongly that all the facts have not been considered?

Does he know that his rate is in line with the rates paid for similar work in the community, and with those in competitive industries? These points are raised because we have the choice of getting acceptance of wage rates at their inception, or of going through long and costly procedures to get acceptance of them after trouble arises. We might call this process "management by consultation rather than by dictation." It is simply the common sense procedure of "talking out" a problem together rather than "shoving it down employees' throats," and it isn't a new procedure at all. Far-

## Business is a Family

"If our nation is to remain strong, we must reaffirm our determination to make American ideals live. In a very real sense the employees of this company constitute a family working together toward common goals. In such a family there is no place for discrimination against any one, employee, prospective employee, or customer on the basis of racial origins or religious beliefs. Let us work together conscientiously to continue our policy of providing fair treatment for all and of making this company truly representative of the best concepts for working and living together."

*Clifford E. Paige*

President, The Brooklyn Union Gas Co.

THE BROOKLYN UNION GAS COMPANY  
176 REMSEN STREET BROOKLYN 2, NEW YORK

*Large-scale newspaper advertisement in Brooklyn drives home a healthy moral*



sighted leaders have used this procedure ever since history began.

The unfortunate part of it all is that this method has been used only in spots according to the temperament of the particular executive or supervisor. Our need, now, is to recognize it officially, and make it universally applicable. For years many managements have consulted with representatives of employees on matters of mutual interest through formal plans for such consultation. Today, this procedure in an organized form, is the law of the land. If this is the accepted procedure on a formally organized basis where intimate understandings of individual problems are difficult to achieve, isn't it common sense to make this consultation effective between a foreman and his men where a completely intimate understanding of the problem may be had?

### Changes in Employees' Status

Now let us examine briefly the next common occurrence in normal business life, the matter of raises and promotions, and on the other hand, lay-offs and demotions. Again there is nothing new in these everyday occurrences, but the way in which they are done may mean the difference between loyalty and disloyalty, between peace and strife. You are thinking that the seniority clause has eliminated all other factors, but in almost every labor agreement, even a seniority clause is based upon the phrase, "ability to do the job."

Most of you are familiar with the following typical situations:

1. An employee is given a raise or promotion. Another employee comes in afterward, and claims to be as good or better than the one who received



*With such displays as this Magic Chef gas range exhibit, home economists, teachers and household editors saw and heard the sales story of the gas industry at the American Home Economics Convention held recently in Cleveland. More than 3,500 attended this show and visited the 170-odd exhibits which included booths by American Gas Association and Servel.*

the benefit. His story is so convincing that we find it impossible to give him any real comparison between himself and the other man. Of course we send him out with "no" for an answer, but, the chances are, with a feeling of discrimination deeply imbedded in his mind.

2. An employee with a number of years' service is picked for lay-off. When he is notified he asks why it took us five years to find out he was incompetent. Why did we not tell him three years before that he was slipping so that he could have improved his performance? What answer can we give him that is sound, legitimate, and fair?

3. An employee of six months' experience goes home one evening, and while at the supper table his wife asks him, "Jim, how are you getting on with your work?" He replies, "I don't know. Nobody ever tells me."

Do you like to know how *you* are getting on in your job? Do *you* ever tell *your* subordinates how they are getting on with their jobs? And can you do it in such a way that they will respect you for it?

### Merit Rating

A definite plan, by which ability to do the job may be determined, seems the only sensible answer. This means a comprehensive plan of merit rating where employees are evaluated, insofar as is humanly possible, on a factual

basis, and not subjectively according to a supervisor's opinion or possible prejudice. Even this is not enough. The way the rating plan is introduced and the way it is used are equally important. Obviously, the supervisors using the plan should have a hand in devising it, and it is equally obvious that the workers should understand the various factors on the scale. They might even have some valuable suggestions to make. These points are so simple and commonplace that it seems virtually a reflection on the intelligence of any group to mention them, but by actual fact how many foremen do take part in devising the merit rating plan they are to use, and how many do take the trouble to explain patiently to their workers the bases upon which their success or failure are being judged?

Perhaps the best answer to this latter question may be derived from another question, how well do you and I do it? How many of us have sat down with our immediate subordinates, singly or in groups, and discussed (not to mention worked out together) the factors on which they were being judged along with the relative importance attached to each factor. Thus, while it is a simple common sense procedure, it does represent an accomplishment of the first magnitude to get it operating with all our supervisory forces.

## Women

● Eighty per cent of working women live in family groups, 20% live alone. Of those in family groups 15% are sole wage earners. More than half in the family group contribute more than half of the total family earnings, according to Women's Bureau of Labor Dept. 84% are in labor market to support themselves and family, 8% work to clear a debt or educate children, 8% because they are interested in job. All reporting had jobs during war.

The trouble with most rating plans, and I speak from experience, is that they are largely theoretical. The factors on the scale are often those developed by persons other than those actually on the job. All too often the ratings, once made, are filed away for safe keeping, and employees come to regard the entire rating process as a "black book" containing all of their misdeeds or errors. Unless the ratings are shown and discussed calmly and constructively with each individual employee by his supervisor, the whole process will cause far more damage to sound industrial relations than any good it will ever accomplish.

What could be more constructive that a frank, friendly discussion between a man and his boss as to the ratings made? There is no mystery to this, and if we will but apply the procedure to ourselves, we will know at once how our employees feel about it. Unless our rating plan plays a basic part in raises, promotions, lay-offs, and demotions, why have it?

With a well-ordered plan of merit rating, changes in work status are made under a system that everyone understands, and are no longer the real or alleged causes of discrimination growing out of what the workers believe to be the personal feelings of the foreman.

The higher supervisor may use the ratings made out by his subordinate supervisors to very good effect. He can quickly determine which supervisors are tough or lenient, too strict or too weak in their dealings with their workers. In fact, if I had my choice of judging supervisors by my own rating sheets on them, or by their rating sheets on their own workers, I would take the latter method every time.

### Influence in a Worker's Life

Throughout this discussion we have emphasized the responsibility of the supervisor in administering our sound policies in the way which builds understanding and promotes effectiveness. Who else is there in our industrial organizations who is in a position to command workers' confidence and respect so that they may feel the company's policies are right, and that they are receiving a square deal? Who else is in a position to help an employee make up his mind about the fairness

of his wage rate, the necessity for orderly work arrangements, the value of intelligent and properly paid executives, the importance of the customer, the importance of good public relations and even the necessity for profit in the free enterprise system?

It requires no imagination whatever to examine one by one the several areas of influence in the average worker's life, and to see from which of these points he might receive sound impartial counsel on the problems of his job. His wife may help him in his domestic problems, but usually knows less about his job problems than he does. His fellow workers are no better off than he is. In his lodge, church, or fraternal organizations are men largely from his own station in life, and who, as a rule are of little value in counseling him about his job. The newspapers and the radio, as they are used, are not a continuous, constructive influence, but rather a means of amusement or entertainment.

Therefore, it becomes more clear that the worker's supervisor has the best opportunity of advising him not only on his immediate job problems, but also upon the entire American economic system, and he seems to be the only one that is in this very useful po-

sition. This being the case, it would seem illogical to indict any worker for showing disloyalty to his company, or for going astray in his thinking. The simple facts are that he has had no other basis for judgment; and if any indictment is to be made we must indict the only source that is available to give the worker sound counsel, the designated representative of the employer, the supervisor.

### Supervisor Training

This brings us to our final point which is the key to the whole situation. As we consider the supervisors and their capacity to do this job properly, we recognize immediately that many of them are incapable of explaining and administering the policies of the company. Except for the details of their own limited operations, they know very little about the company. Remember, "nobody ever tells them." Therefore, the crux of our problem lies in training and influencing the supervisors.

Many procedures have been devised in the past few decades to accomplish this objective. One method, if it can be called a method of developing supervisors, is to let them flounder around as best they (Continued on page 414)

## Plentiful Hot Water Is Advertising Theme



**140 times a day!**  
...that's how many times the average family turns on the hot water faucets!

Showers, baths, laundry, dishes, and dozens more household tasks mean that someone in the house is turning a hot water faucet every few minutes! For modern living, every family needs plenty of hot water...ready at the turn of a tap any time of day or night.

How to get it? Automatically with GAS! Gas automatic water heaters are fast... clean... economical. And for modern appliances such as automatic laundries and dishwashers, it takes the speed of GAS to keep up with the demand for hot water.

**GAS WATER HEATERS**  
Fully Automatic  
READY FOR IMMEDIATE DELIVERY!



**...AN ACRE OF DISHES TAKES OCEANS OF HOT WATER**

Yes, it's true! The dishes you wash in a year's time, spread end-to-end and side-by-side, would cover a full acre! A few at a time with plenty of hot water (or with an automatic dishwasher which you'll have very soon) dishwashing is no problem.

It's two to one you'll have more hot water when you need it with an automatic GAS water heater. Nothing to do but turn the tap!

**GAS** IMMEDIATE DELIVERY  
Fully Automatic • Fast • Clean  
GAS WATER HEATERS

See Your Plumber, Appliance Dealer or...  
**PORTLAND GAS & COKE COMPANY**

Advertisements in current newspaper campaign of the Portland, Oregon, gas utility

# Gas Grows Glamorous

Advertising most likely to succeed is that which demonstrates benefits of modern service in terms of personal satisfaction

BY GLENN A. BISHOP

*President, Bishop Publishing Company,  
Chicago, Ill.*

**G**LAMOROUS Agnes de Mille is perhaps single-footedly responsible for adapting the foreign ballet to American moods and themes. When the musical play "Oklahoma" opened in March, 1943 (it's still running) and became the biggest hit in the history of Broadway, all the other producers scamped around to follow suit. The cry went up for ballet dancers—now it is an unusual thing for a musical to be produced without a ballet. It just isn't done because this new art has added a new kind of glamour to the theater. Likewise, new appliances and new concepts have made it possible for gas to go glamorous too, in millions of homes.

One thing that has helped gas go glamorous is the modern kitchen scenes in the talkies showing gas cooking and refrigeration equipment. One way to make anything *new* have public acceptance is to have it seen, advertised and talked about. Conde Nast, of magazine fame, successfully practiced "The downward percolation of fashion." In other words, "The masses follow the leader" and this applies whether the new thing or style is shown in the talkies, magazines or newspapers, or on displays.

Even when the national magazines advertise in the newspapers, you'll notice that they talk about their features, stories, articles, sparkling illustrations—they refrain from talking about the wonderful bunch of color and black and white "ads" that make the magazines possible. They bring out the glamour in their magazines. The cosmetic industry, leading retailers and many others learned this fact a long time ago.

Likewise the gas industry no longer talks about the mechanics of production and various other problems in connection with serving its customers (except

in emergencies beyond their control). A certain amount of institutional advertising is always good, also tends to help protect our American way of life. One of the best ways to talk about your gas company is how you can help your customers entertain their friends and customers. There are many things to talk about that will make Gas a Glamorous Fuel—*because of what it does.*

So, the big job is holding and increasing business from present customers and securing business from new homes. To do this, the first essential is to prevent the inroads of competition by selling them the benefits of gas service—that gas is modern, that gas is best for cooking, water heating, refrigeration; that gas is dependable, safe, clean, economical for scores of household uses. When we *sell* the value of gas service, people will want to buy the equipment.

We must keep the gas cooking load by showing how glamorous New Freedom Gas Kitchens can really be. Attractive A. G. A. kitchen illustrations have, and will continue, to appear in modified forms in many national magazines with gas display tie-ups for window and sales-floors at the point of sale. This national advertising has convinced millions that gas and modern gas appliances are in style and meet all the requirements of modernity. As you know, good displays too have personality, contain showmanship, cause action.

Homemakers appreciate how all this helps them become more glamorous because when working in pleasant kitchen surroundings, gas, the silent, speedy, effortless household helper, lightens their own duties, thereby giving them more leisure for recreation and other interests.

A recent Young and Rubicam "ad" said: "Advertising most likely to succeed does not try to push products at people. It pulls people to products." All this means that we, in the gas industry, must be able to say: "GAS GOES GLAMOROUS," too!





## Gas Kitchen at Home of Century



The kitchen shown above is a Servel unified gas kitchen of New Freedom design, located at the Victory Home of the Century, Steel Pier, Atlantic City, N. J. The home has been on exhibit from June 15 until September 15 since 1936, and has had more than five hundred thousand visitors annually. Other gas appliances in the Home of the Century in addition to the range are: air-conditioning unit, console water heater, space heaters, garbage disposal unit, dryer, and a gas refrigerator.

## Gas Has Spot in Columbia Course

A SHORT seminar in the planning of home economics laboratories conducted by Dr. Florence E. Blazier of Oregon State College was held during the summer term at Columbia University. As chairman of the A. G. A. committee that prepared the Home Service booklet "Modern Kitchens for Home-Making Instruction," Ruth Sheldon of the Washington Gas Light Co., was invited to discuss the use of gas appliances for school

instruction.

Through the courtesy of the American Stove Co., a modern gas range was used in the discussion which took place August 1. Assisting Miss Sheldon in answering the questions of the 40 Home Economics teachers who attended were John H. White, Jr. director of promotion, American Gas Association, and E. W. Westland, American Stove Company.



Taking part in the Columbia University seminar on home economics laboratories were, left to right: Dr. Florence E. Blazier, Oregon State College; John H. White, Jr., A. G. A. promotional director; Ruth Sheldon, Washington Gas Light Co.; and E. W. Westland, American Stove Company.

## Natural Gas Research Projects Approved

THE Association's Special Committee on Gas Industry Research and Promotional Plan has now approved the recommendation of the Natural Gas Department's Managing Committee for appropriations for continuing two cooperative studies with the Bureau of Mines on: (1) The Pipe Line Hydrate Project, and (2) The Gas Well Deliveries Project. The appropriations for these are \$2,500 and \$7,000 respectively.

The committee also approved the initiation of a project on the study of "Flow in High Reynolds Number Pipe Lines," estimated at \$67,000 for three years with an appropriation of \$17,792 for the present year. C. H. M. Burnham, vice-president and general manager of the Panhandle Eastern Pipe Line Company, is heading a committee on the plans and procedures for the Pipe Line Flow project and work will begin in the near future.

The Institute of Gas Technology has completed a preliminary investigation of "The Storage of Natural Gas As Hydrate" at a cost of about \$4,000, from which report the Department's Technical and Research Committee will determine whether or not to proceed with the study.

Under the chairmanship of A. F. Bridge, vice-president and general manager of Southern Counties Gas Company, a committee has been appointed to study the potentialities of the economics of removing nitrogen from natural gas in order to ascertain the desirability of further study.

## Gas Sales Gain

SALES of gas by utility companies for residential and commercial use, in accordance with an apparent long-term trend, increased in June, the American Gas Association reported August 7. Increases in residential gas sales were reported in each of the three categories of manufactured, mixed and natural gas for the month.

Declines in sales of industrial gas through the continuing inability of industry to attain its wartime production peak, offset residential and commercial gas sales and total sales of gas utility companies for June amounted to 1,942,000,000 therms, a decrease of about 4.4 per cent under sales for June, 1945. For the 12 months ended June 30, 1946, total sales of utility gas to ultimate consumers excluding sales to other utilities, aggregated 25,683,000,000 therms, a decline of about 1.8 per cent compared with the like period a year ago.

For the first time since its statistical activities were established more than 20 years ago, the American Gas Association is now developing separate information pertaining to mixed gas which is comprised of mixtures of manufactured and natural gases. These data were formerly included either in the manufactured or the natural gas series, dependent upon the heating content of the gas.



# Promotion

PREPARED BY A. G. A. PROMOTIONAL BUREAU

## Hot Water Magic

**H**OT Water Magic," a distinctive, fact-packed 24-page manual on home laundering has just been produced by the Promotion Bureau and is already receiving an enthusiastic welcome throughout the gas industry. It was prepared as a part of the promotional program of the Water Heating Committee of the Residential Gas Section.

Attractively printed in three colors, the manual is well illustrated with sprightly drawings. Much of the text is built around the maxim "the hotter the water the whiter the wash" and contains specific information on proper water temperatures for washing various fabrics, including the new synthetics. Every type of material and garment is covered from cotton to fibreglass and from blankets to handkerchiefs.

Separate sections give consideration to special operations such as laundering knitted goods, curtains, laces, slip covers, draperies, work clothes, infant's wear, elastic garments and accessories.

A complete table on stain removal and special pages on drying and ironing are features of the manual.

"Hot Water Magic" is being produced in two editions, one for the use of home economists in the schools and colleges and the other for distribution to customers and prospects. The teacher's manual was printed first and has been circulated widely throughout the industry. It will be furnished local gas

companies without charge so that they may distribute it to the home economists in the schools of their territories shortly after the beginning of the fall term.

A teacher guide is being produced as a supplement to "Hot Water Magic." It will act as a stimulus and aid to the teaching of home laundering. The guide was prepared by experts familiar with both the school field and the laundering operation. It too will be free and will be enclosed with copies of the teacher's manual.

The consumer edition will be made available to gas companies at cost—10¢ each. It will be exactly the same as the teacher's manual except that it will contain a special sales appeal on automatic gas laundry dryers and automatic gas water heaters. This sales emphasis has been omitted in the teacher's edition because of established school policy against such advertising.

Orders for the consumer book are pouring in from every part of the country and the first run will go to press shortly.

Gas company executives who have seen the book are enthusiastic about it and declare it will be widely used. They believe it will open the doors for their salesmen and will be an effective enclosure in mail campaigns. Too, they recognize it as valuable educational material in the hands of home economists and as a builder of good will wherever it is distributed. Teachers of home economics are expected to welcome the book

as a much-needed aid in teaching the important subject of home laundering.

The manual will be backed by a comprehensive publicity campaign directed toward editors of magazines and the women's pages of newspapers, radio feature directors and others who influence the thinking and buying habits of millions of women.

## Gas Range Manual

**N**OW in preparation is a 48-page manual on Care and Use of the Gas Range which will be ready for distribution to home economics teachers early in 1947. The text is being written by a highly qualified home economist with long years of experience in the gas industry and in the teaching field. A special committee of home economists and others representing a cross-section of the gas industry is acting as an editorial board. Exhaustive treatment of every phase of automatic gas cookery is planned with emphasis on its flexibility and cleanliness, and on the simplicity of cleaning the range. New features of gas ranges will be fully covered.

## Appliance Outlook Brighter

**F**IGURES compiled by the Civilian Production Administration, listed in the table below, show that the June output of most representative major appliances was far above the monthly average for the years 1940-41. Also that the monthly average for the nine months ended June 30, 1946—during which time many plants had not yet reconverted and when all industry was plagued with strikes and scarcities—compares favorably with the prewar monthly averages.

Item	Prewar Monthly Average	Present Monthly Average	June Output
Gas ranges . .	125,000	124,000	141,000
Washing machines . . . . .	158,000	136,000	193,000
Mechanical refrigerators	309,000	129,000	200,000
Gas water heaters . . .	71,000	*102,000	—

\* Average for seven-month period ended April 30, 1946.

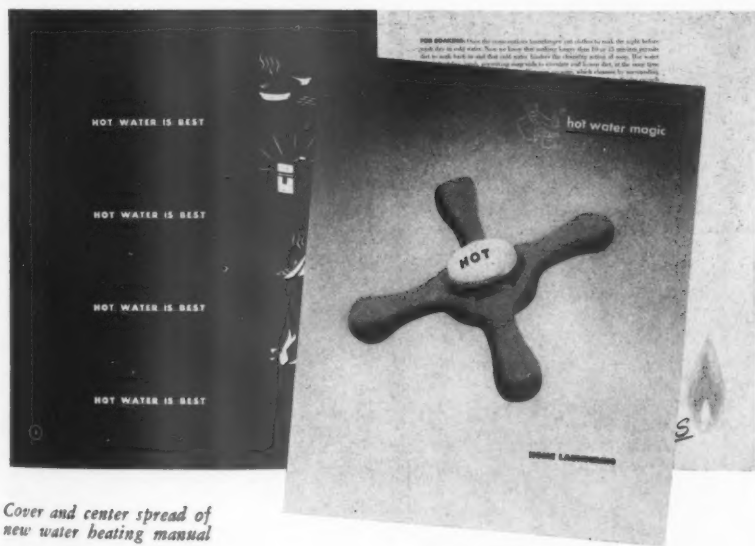
Since most factories expanded their facilities enormously during the war years, present high production levels are still nowhere near capacity. Material is the major bottleneck.

## Residential Sales Advance

**G**AS has scored further advances in New Jersey, according to figures released in the 1945 annual report of the Public Service Corporation of New Jersey.

Gas sold to residential customers, exclusive of building heating, totaled 19,856,300, 500 cubic feet, a gain of 973,783,700 cubic feet compared with 1944, or 5.16 per cent.

Building heating gas sales in 1945 amounted to 4,465,543,200 cubic feet, or 3.08 per cent more than in 1944. At the end of 1945 there were 17,433 installations, 719 more than at the end of 1944.



Cover and center spread of new water heating manual

## Hearings on Natural Gas Concluded

THE final hearings in Docket G-580 of the Federal Power Commission which began on June 17 in Washington concluded on August 2. Highlighting the final examination of witnesses was the testimony of R. H. Hargrove and E. Buddrus, acting for themselves as individuals of experience in the natural gas business, and E. Holley Poe who summarized the industry's case.

Mr. Hargrove discussed the F.P.C. practice of evaluating gas utility properties on the basis of original cost less accrued depreciation. He declared that "original cost cannot be said to evaluate current cost at any time other than the date of construction." Contending that the principal items of expense in pipeline construction are steel and labor, he suggested the development of an "index weighing the cost per ton of steel and the cost of labor" for application to the original cost of property to upgrade or downgrade its value and "convert original cost to current cost."

E. Buddrus suggested that the Commission examine its rate-making procedure and modify it to give recognition of rates for pipeline companies commensurate with rising costs in recognizing higher field values. This would tend to stabilize the industry and add incentive for exploration and new discoveries. He criticized the present administration of the Natural Gas Act by the Commission in its treatment of valuation of production and gathering properties. He declared that the Commission's rate-making policies have the effect of nullifying the reward for foresight and good business judgment.

He asked that interventions in certificate cases be reduced to those interested, and indicated that the coal, railroad and labor

interests do not serve the public by their intervention.

Mr. Poe spoke on the dependability of the natural gas industry in the public service: "Delays in extending natural gas service to more sections of the country are attributed largely to the Federal Power Commission's rules permitting practically unlimited interventions by the coal and railroad industries." The natural gas industry does not fear the competition of the coal industry, he continued, but it does fear the possibility of the application of sociological criteria in F.P.C.'s administration of the Natural Gas Act. "The reading of the Natural Gas Act does not reveal any expressed authority excepting that over the interstate transportation of natural gas for resale for public consumption." He further stated that since 1942 the coal-railroad-labor groups have filed 1,570 interventions with F.P.C. relating to 63 applications for certificates required for proposed natural gas service expansions.

The Bureau of Labor Statistics estimate of 15,000,000 idle man-days during the coal strike was applied to the Bureau of Mines' average of 5.67 tons of bituminous coal produced per man-day, to approximate the potential production of 85,000,000 tons. Mr. Poe stated that the energy that would have been available in the potential production was the equivalent of 2.3 trillions of cubic feet of natural gas, or about the same as the 1944 gas sales for domestic, commercial and industrial purposes.

Mr. Poe said his testimony was his composite of what he believed to be the industry's views though it was not necessarily unanimous.

About sixty-one witnesses were heard at the 33-day Washington hearings.

## Bids Opened for Big Inch Lines

SIXTEEN proposals to buy or lease the Big and Little Inch Pipe Lines, which represent a Federal Government investment of \$146,000,000, were opened publicly and read on July 31 by officials of the War Assets Administration in the auditorium of the Social Security Building, Third Street and Independence Avenue, Northwest, Washington, D. C.

The offers to privately operate the two big emergency lines contemplated both oil and gas transmission, with one proposal outlining the removal of the Little Big Inch from its present location and relaying it from Texas to California as a crude petroleum carrier. Many of the offers embraced special conditions for both operating and financing the lines.

War Assets Administration officials stated that after reviewing all bids, oil proposals will be analyzed first, oil-gas combinations

or alternatives second, all-gas offers third, and any others fourth. They pointed out that if some of the proposals are so indefinite as to preclude their consideration as firm offers, these would have to be rejected entirely.

In the course of analysis, prospective purchasers or lessees will be called upon to substantiate the terms and conditions of their bids, but no bidder will be permitted to change the essential form of any proposal.

At the public opening of the bids a representative of the War Assets Administration stated that if none of the petroleum offers are basically in accord with disposal policy and the objectives of the Surplus Property Act, the War Assets Administration reserves the right to reject all offers; and that it may be advisable to request further authorization from Congress before considering non-oil use.

## Convention Calendar

### SEPTEMBER

- 9-11 •Appalachian Gas Measurement Short Course, West Virginia University, Morgantown, W. Va.
- 10-12 •Pacific Coast Gas Association annual convention, Fairmont Hotel, San Francisco, Calif.
- 12-13 •Midwest Industrial Gas Council, The Radisson Hotel, Minneapolis, Minn.
- 16-18 •Controllers Institute of America, New York, N. Y.
- 20 •Oklahoma Utilities Association, Gas Division, Biltmore Hotel, Oklahoma City, Oklahoma.
- 23 •Midwest Gas Sales Council, Residential Gas Section, Edgewater Beach Hotel, Chicago, Illinois.
- 26 •New England Gas Association Managers Conference, Copley Plaza, Boston, Mass.

### OCTOBER

- Wk. of 7th •American Gas Association, 28th Annual Convention and Exhibition, Atlantic City, N. J.
- 7-11 •34th National Safety Congress and Exposition, Stevens Hotel, Chicago, Ill.
- 28-30 •Midwest Gas Association and Iowa State College Gas School and Conference, Ames, Iowa

### NOVEMBER

- 11-14 •National Hotel Exposition, Grand Central Palace, New York, N. Y. (A. G. A. Sponsored Combined Exhibit).
- 18-22 •National Metal Congress and Exposition, Atlantic City, N. J. (A. G. A. Combined Industrial Gas Exhibit).
- 21-22 •Mid-Southeastern Gas Association, 8th Annual Meeting, Sir Walter Raleigh Hotel, Raleigh, N. C.

### DECEMBER

- 2-6 •American Society of Mechanical Engineers, New York, N. Y.
- 2-6 •National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, N. Y. (A. G. A. Combined Exhibit).

1947

### JANUARY

- 27-31 •Seventh International Heating and Ventilating Exposition, Lakeside Hall, Cleveland, Ohio. (A. G. A. Sponsored Gas Exhibit).

### MARCH

- 20-21 •New England Gas Association, Annual Convention, Boston, Mass.

### APRIL

- 7-9 •A. G. A.-E. E. I. Accounting Conference, Hotel Statler, Buffalo, N. Y.
- 14-16 •A. G. A. Distribution and Motor Vehicle Conference, Hotel Cleveland, Cleveland, Ohio.

### JUNE

- 2-4 •Joint Production and Chemical Committee Conference, Hotel New Yorker, New York, N. Y.

# Accounting Section

E. F. EMBREE, Chairman

LEITH V. WATKINS, Vice-Chairman

O. W. BREWER, Secretary

## Limitations of Cost Comparisons

AT the time the subject was assigned to your subcommittee it was recognized that more and more emphasis is being placed on costs and cost control in industry generally as a result of conditions under which we are operating today; namely, substantially increased costs which are continuing to mount because of the present inflationary trend in our economy. In order to determine where costs are rising disproportionately it is often helpful if comparisons of a particular company's costs are made with those of another company or companies. Cost comparisons will not lower costs nor remedy unsatisfactory conditions, but simply suggest or point out where further work might be done which may result in lowering costs or in more adequate control of certain costs. In our business, where we have always had what amounts to ceiling prices for our products, the problem of controlling rising costs, where possible, is a particularly significant and increasingly important one and cost comparisons, properly made, can have an important part in the picture.

### Emphasis on Cost Standards

Then too, the Federal Power Commission was placing increased emphasis on cost standards just prior to the outbreak of the war as evidenced by the following excerpt from its report for 1940:

"The Commission's statistical work has been increasingly directed toward the development of yardsticks of costs, rates, and performance, thereby introducing some analogies to the force of competition in an industry which has always considered itself a natural monopoly. To complement this work the Commission is rapidly developing a significant study of unit costs and financial relationships to supplement its typical bill comparisons."

and later on in the same report referring to its annual publication "Statistics of Electric Utilities in the United States," the following appears:

"The report thus furnishes a basis for the development of cost and management standards, related to the peculiarities of the individual companies, supplementing the rate standards embodied in the typical bill reports. The Commission has evidence that utility companies and financial houses are using this authoritative and comprehensive itemization of the operating performance of the various systems in just this way."

Thus, it can be seen that in cost comparisons such "yardsticks" as unit operating costs

### Joint A. G. A.-E. E. I. Report BY SUBCOMMITTEE ON COST ANALYSIS AND CONTROL,

O. K. BOYD, CHAIRMAN

*Consolidated Gas Electric Light and  
Power Co. of Baltimore, Baltimore, Md.*

for various expense accounts are important enough to be given careful thought and study by all of us in the industry. Not only from the viewpoint of the meaning of the figures produced by such comparisons or surveys, but also from the viewpoint of the validity of the concepts embraced in the Federal Power Commission's 1940 report and the possible uses to which the so-called yardsticks may be put by regulatory authorities.

Cost comparisons are most commonly made to determine wherein one company's expenses of one class or another differ from similar expenses of another company, or other companies, and the reasons for such differences. They are made by comparing the costs of two individual companies, by comparing the cost of one company with the average of the costs of a group of companies, or by comparing one company's costs with some pre-determined yardstick. In most of these cases costs are expressed in the form of a selected unit such as mils per kilowatt-hour sold, dollars per customer for distribution expenses, dollars per customer or per meter for customer's accounting expenses, the ratios of certain costs to total revenues, the operating cost per mile of transmission line, the investment per structure mile of transmission line, investment per kilowatt of capacity, etc.

### Unit Cost a Ratio

It must be remembered, however, that any unit cost is really a ratio or fraction arithmetically derived. Both its numerator and denominator are variables; each will vary independently of the other. Unit costs are really not comparable unless the "miles," "customers," etc., which their denominators represent are reasonably similar "miles" or "customers." There is some logic to the argument that if the method used in developing the yardstick embraces a large enough number of companies operating in essentially the same type or class of territory, the resulting average will be a good yardstick, in that the size of the group used in arriving at the average will tend to counterbalance the effect of in-

dividual or local situations on the yardstick. This may be true, but the denominator is only one part of the fraction, and the numerator may be affected by many other factors which may or may not be offsetting. Even though the sample used in arriving at the so-called yardstick seems to be large enough, much actual field research and thought might well be necessary before such units should be accepted as a proper basis for judgment as to operating efficiency or similar matters.

For example, dollars per customer may be a good yardstick or basis for comparing customers' accounting and collecting expenses, provided the companies being compared are of about the same size, operate in the same type of territory, having the same population, density, etc., but to use this as a yardstick in gauging the comparative efficiencies of a company having 100,000 customers with one having 500,000 customers may be wrong. A company operating in a larger city may have a much larger proportion of its customers on more complex and involved rate schedules; i.e., commercial and industrial business, where the billing costs and meter reading costs may be high. Likewise, in a larger city more customers may be served on a bulk metering basis, so that one meter may represent a number of users.

### Limitations Recognized

A comparison under these conditions would produce misleading and inaccurate conclusions as to the relative efficiencies. Also, in comparing distribution expenses, dollars per customer or cost per mile of line are the usual bases for comparing such costs. Again, however, the characteristics of the territory, type of distribution system, management's policies as to customer service, etc., have an important bearing on the numerator of the fraction, and unless proper weight is given to their effects, the resulting figures may be meaningless.

From the foregoing it can be seen that although cost comparisons may serve a useful purpose in solving a given problem, they will not be very useful unless their limitations are recognized and allowances made for the effect of such limitations. It is the purpose of this report to point out, albeit somewhat negatively, some of the factors which affect the costs of an individual company and which should be allowed for in making comparisons with other companies or as between companies. The report will, for the most part, be limited to items or factors affecting costs which are reflected in operating expenses and

Presented at A. G. A.-E. E. I. National Accounting Conference, Cincinnati, Ohio, April 1-3, 1946.



maintenance. Depreciation and taxes are special types of expenses over which management has comparatively little control, although, as will be pointed out later, some of the factors which affect cost comparisons may also affect depreciation or taxes.

For convenience in discussion, the factors affecting the individual company's costs, which should be considered in making cost comparisons, have been divided into eight major groups. They are:

1. Location.
2. Density of population.
3. Design of plant.
4. Local governmental restrictions or regulations, or franchise requirements.
5. Differing departmental organizations.
6. Differing company policies.
7. Other factors affecting a particular class of operating expenses.
8. Problems of the combination companies.

### 1. Location

The location of the area in which the company operates has a very definite influence on the type of construction which may be necessary to render adequate service. For example, transmission and distribution line construction in some parts of the country may be relatively low, while in other parts of the country difficulties of terrain may increase construction costs or may increase the cost of patrolling and maintaining lines. The type of construction will also influence the depreciation charges. In an area where low-cost type construction is possible depreciation and maintenance costs may both be low. In another area, construction costs may be high, and because of the weather, frequency of storms, etc., maintenance costs may also be high. Distribution costs will be higher in those areas where storm trouble frequently occurs, as well as in those areas where rainfall is excessive and tree trimming costs higher than in the drier regions. Likewise, the effect of soil conditions on gas mains and services may have an important bearing on their life, hence, on maintenance and capital costs.

Another way in which location affects costs is the proximity of sources of supply and the transportation facilities available for fuels. For example, in the gas industry natural gas is the predominant source of supply for those companies in the middle and southwest, as also for those in the east near the major pipe lines—along the Atlantic seaboard, however, the majority of the companies are manufactured gas companies. In these latter cases the problem is one of available transportation to afford a steady supply of coal and oil. In the electric industry the proximity to coal is a factor in cost, as also the possibility of obtaining hydro power. A company located near a hydro electric development may be in a somewhat more favorable cost position than one which must depend entirely upon its own steam generation.

### 2. Density of Population

The density of population in the area served can have a very real effect on costs. A utility serving an entirely urban or suburban population will have a different cost picture in its transmission, distribution and customers' accounting and collecting groups than one

serving a rural area. The higher the population density the lower should be the unit cost of these classes of expense.

On the other hand, one city may have a population of lower purchasing power and be spread over a wider area than the city with which it is being compared. Also, in urban areas there is a probability that a much larger portion of the transmission and distribution systems will be underground; thus, tending to lower operating and maintenance costs, but because of the much greater investment in underground facilities than overhead facilities, depreciation expense will probably be greater.

### 3. Design of Plant

Another factor affecting costs is the design of the plant. If the plant is one which was installed in more recent years, operating costs will be lower. This is particularly true in the gas business, where more modern installations include automatic equipment rather than the old style hand-operated machines.

### 4. Local Government Restrictions or Regulations, or Franchise Requirements

Local governmental restrictions, regulations or franchise requirements might result in a shifting of costs from one category to another. For example, in large cities space occupied by underground cables may be rented from the municipality and the conduit owned by the city. Such conduit rentals might result in a higher charge to distribution expenses than would be the case if the company should construct and own its own conduits—the offset would probably be in a lower property tax rate. Another example might be a franchise payment to a local government, such as a pole tax, which might be superimposed on or a substitute for the normal property tax which might be levied on the basis of the cost or value of the property in use.

Another factor in this category might be the requirements of the regulatory commission as to testing meters, which will vary in different jurisdictions—many of the commissions lengthened the period required between such tests as a war measure, and it is doubtful whether the pre-war standards will be re-instated in all cases. A more recent development along this line is the increased activity in the larger cities looking toward smoke control. Local ordinances in some cases are requiring the companies to install expensive equipment (which adds to depreciation, maintenance, and even operating costs) to reduce the smoke nuisance.

### 5. Differing Departmental Organizations

Departmental organizations may differ considerably as between companies. There are varying degrees of centralization of organization of accounting work among the larger companies, which leads to a different classification of employees as between companies. Centralization of mailing costs, cost accounting, etc., leads to the classification of these employees as accounting; whereas, when these functions are decentralized, employees are apt to be classed as distribution, sales

promotion, etc. Then, too, the same work may be done by two or more departments.

Some functions, such as "turn on" and "turn off" service work, meter history record, etc., are properly classed as customer accounting work in some companies and as distribution or meter operation in others—the actual physical work of turning on and turning off of service and handling cut-offs may be performed by distribution department forces, or by representatives of the collection department. Appliance adjustments and complaints may be handled by both trouble men and service men. Secretaries and file clerks in executive departments, may be classed as administrative or as accounting.

Another example of the effect of departmental organization on costs can be found in Stores Expense. One company's rate may be considerably higher than another; the differential may be caused by the fact that in the company having the higher rate the purchasing and stores functions are combined as one department, and this is quite proper and permissible under the System of Accounts; the company having the lower rate, on the other hand, may include in its stores expense burden only the actual cost of physically handling the materials. Stores records may be maintained by the storekeeper or by the central accounting division or part by each.

### 6. Differing Company Policies

The companies' policies may differ widely. For example, as to gratuitous service allowances to customers, one company's policy may require that a substantially larger amount of "free premises time" be given than that of another company. Also, the quality of service should be considered, i.e., the promptness in answering "lights out" calls, promptness in answering calls for new house service, safety calls, etc. Further, as to maintenance and construction of property, one company may "patch the old shoe," whereas another may keep reasonably up to date with technological progress and replace the old equipment promptly and render more economical and reliable service.

Company policies differ as to the best method to be used in load building. One company may prefer the dealer cooperation plan, while another may prefer to do direct selling of appliances on its own behalf. Also, a company's policy as to load building may shift from time to time, depending on the need for increasing certain types of load because of available capacity or for other reasons. The rate structure of the company will have its effect on costs. If the rate structure is a comparatively simple one and the demands of the Rate Department for information and statistics are not too great, costs will probably not be seriously affected. On the other hand, the company's policy may be that the rate structure should be designed to stimulate certain classes or types of load, resulting in very complex rate schedules, thus increasing clerical costs in the customers' accounting department and possibly even having an effect on sales promotion costs.

The company's policy as to labor matters can, of course, have a very definite bearing on costs. The management may find that it



is more desirable to use company forces in virtually all of its activities which, of course, would mean a larger number of employees. Or management may decide that it is more economical to employ outside contractors or agencies to do much of the work (and some companies do just this) such as maintenance and construction work, appliance repairs, sales promotion advertising and publicity, and employ outside legal, engineering, and research counsel and services instead of maintaining such departments internally. The argument in favor of the latter policy, of course, is that it is more responsive to the needs of the business, in that if it is desirable to curtail or reduce expenses temporarily, this work can be restricted or discontinued entirely without posing a personnel problem in lay-offs, etc.

The company's policy with regard to what might be termed an all-inclusive salary versus salary and other benefits including items such as lunchroom, group insurance, educational assistance, medical expenses, employee recreation, pension plans, and hospital insurance. Companies adhering to the former policy will have comparatively high direct labor costs with smaller amounts being charged to general expenses for various forms of employee benefits, while companies adhering to the latter policy (which seem to be the majority) will have somewhat lower direct labor costs in the various functional account classifications, offset by higher administrative and general expenses covering the cost of the various forms of employee benefits in effect.

The collection policy of the company might also have its effect on costs, some companies adhering to the policy of obtaining large deposits from customers and others following the policy of obtaining either no deposit or a nominal one and spending more money in collection efforts.

Gas and electric companies operating under the F.P.C. and N.A.R.U.C. Systems of Accounts have certain leeway in the establishment of "retirement units." Some companies choose to separate their properties into large units, while others separate theirs into small. The requirements of the System of Accounts permit a fairly wide latitude in respect to selecting property retirement units. The result is that the maintenance costs of the companies using larger units are higher in that less work will be treated through the plant accounts, while those companies using the smaller units will decrease maintenance costs, but, of course, increase depreciation charges over a longer period in that larger amounts of dollars are capitalized.

Another matter of policy is that with respect to the capitalization of overheads. The Systems of Accounts here, too, are permissive rather than mandatory allowing some latitude for management discretion. Management's policy may be to minimize the capitalization, for example, of general expenses, thus reducing investment in plant by increasing operating costs.

## 7. Other Factors Affecting a Particular Class of Operating Expenses

In addition to the factors previously enumerated, there are other items which affect a

particular class of expenses and should be recognized in making cost comparisons.

As to production expenses: The type of fuel used and its availability may have an important bearing on these costs; this is particularly true in the natural gas field where the distance between wells and some production fields is much greater than others; also, the royalty rates in some production areas are higher than in others. The ratio of purchased electricity or purchased gases to total production outputs will have its effect on these expenses. A high ratio of purchased electricity or gas will tend to increase production costs but will reduce depreciation, and possibly taxes, because of the lower investment required in production plant. The same shifting of costs between production expenses and depreciation may be observed when comparing the production costs of a natural gas company with a company selling manufactured gas.

The type of generation in the case of electric companies will also have a bearing on these expenses, in that companies whose output is produced from hydro power may have lower production expenses than those whose output is produced entirely from steam generation. Here, however, one must be careful to know the exact conditions existing during the period covered, in that a hydro company in one section of the country may have had a very good river flow due to better than average rainfall conditions, while a company in another section of the country may have had just the reverse condition, plus increasing costs appreciably. When comparing costs among smaller companies a knowledge of the load factors is essential in that the intensity and frequency of peaks will have a very important bearing on production costs (particularly labor costs for standby capacity), investment in production capacity, etc.

## Distribution Expenses

Comparisons of Transmission and Distribution Expenses should take into consideration the type of construction in the systems—whether long span or short span construction has been used, ratio of overhead lines to underground conductors, etc., all of which have an important bearing on the operating costs and maintenance. Also the ratio of high tension industrial load to total load will affect the amount of transformer and substation capacity that will have to be operated and maintained. The shape of the load curve will have its effect on costs.

If comparisons are being made of transmission expenses and distribution expenses separately a knowledge of the definition of what is considered transmission and what is considered distribution by the respective companies must be had. What may be defined as transmission by one company may be part of the distribution system of another company. These differences in interpretation or judgment can, of course, affect the amount of expenses reported in either of these two functional categories.

Other questions which might be asked in comparing Distribution Expenses are:

(a) As to city street light operations and maintenance, one may ask "how clean are the

globes; how well-painted are the iron poles," etc. Are these costs borne by the company under its lighting contracts or does the company simply furnish the current and the municipality operate and maintain the equipment, or part of it?

(b) Are charges made for "fuse calls" and, if so, are the charges made to distribution expense?

(c) Do the customers move frequently, either because of innate restlessness or because many are seasonal visitors to summer resorts and the like?

Comparisons of Customers' Accounting and Collecting Expenses may be affected by a large number of different things and much has been said and written as to this group of expenses by the Committees on Customers' Accounting. In this report we shall merely mention some of the more outstanding items which should be borne in mind in making comparisons. They are:

(a) Frequency of the issuance of bills; i.e., monthly, bi-monthly, or quarterly.

(b) The degree to which estimated bills are used to supplant bills resulting from regular meter readings.

(c) The degree of mechanization of routine clerical procedures.

(d) Policy as to when uncollectible bills are written off and the amount of collection effort expended after write-off.

(e) The extent to which customer frequency data and other customer statistics for rate and sales promotion departments may be compiled.

(f) The amount of checking that may be done to see that customers are on the proper rate schedules or are put on the proper rates as soon as their conditions justify—one company may be checking this rather frequently whereas another may check at longer periods.

(g) How much time is devoted to watching high and low bills and issuing re-read orders and examination orders to avoid customer complaints and to protect revenues.

(h) The longer intervals between tests of

(Continued on page 416)

## Packman Organizes Accounting Firm



C. E. Packman

C. E. PACKMAN, Certified Public Accountant, and former vice-president and controller of the Middle West Service Co., The Middle West Group of Public Utilities, announces the organization of his own firm, which will specialize in consulting and accounting for public utilities.

Mr. Packman is a well-known and very active member of the American Gas Association, having served many times on committees of the Accounting Section and as chairman of the Section in 1944-1945.

The address of the new firm is 39 LaSalle Street, Chicago, Illinois.

# Residential Gas Section

J. J. QUINN, Chairman

WALLACE M. CHAMBERLAIN, Vice-Chairman

F. W. WILLIAMS, Secretary

## We Must Make It Easy To Buy



H. W. Nichols

IN the early part of 1935 we realized that in order to increase the sale of gas and electricity (ours being a combination company) it would be necessary to work out a plan which would make possible the purchase of appliances by a greater number of customers. We approached the problem in two ways. One was by bringing dealers operating in the territory served by the company into closer contact and harmony with utility activities. The other was that under existing conditions we felt that carrying charges were out of line with the ability of moderate income earners to pay and monthly payments were too high in proportion thereto.

While we had very little experience with long term installment financing, we believed that if the customer's obligation were within his means to pay, our ability to increase our business would be much improved. We believed also that the cost of financing was entirely out of line with modern times. After contacting several of the larger financing companies, we discussed our problem with one of the local banks. With their assistance we developed a low-cost long-term financing plan which was made available not only to ourselves but also to the dealers operating in our territory.

There were, of course, other problems and the question of administration to insure success of the plan is of the utmost importance. While the utility entered into the arrangement with the Bank for financing time-payment sales and guaranteed the paper which was financed, nevertheless it was deemed advisable to have an impartial board act as administrator. Accordingly from among representatives of the appliance industry we designated two retailers, one distributor, the secretary-manager of the Electrical Association, and one member of the utility to form what we called the Standards Committee to administer the plan.

\* Chairman, Appliance Financing Committee.

BY H. W. NICHOLS\*

Rochester Gas & Electric Corp.,  
Rochester, N. Y.

The duties of this committee were to act as a clearing house and pass on applications and qualifications of dealers desiring to use the plan. They approved both the product and the seller thereof. In relation to the product, only E. T. L. approved electric appliances and A. G. A. approved gas appliances were considered for financing. It was required also that equipment be purchased through local distribution channels and that dealers be equipped to furnish the service which might be required in order to insure proper performance of the appliance to be financed. In the case of gas equipment, distribution of merchandise is on a little different basis, and dealers were required to maintain proper service to insure satisfactory operation of the equipment.

In regard to the financial statement of the dealer, the committee considered each application on the basis of net worth, capital investment, cash on hand, and accounts receivable. The Robert Morris Ratio was used as a basis in determining the dealer's financial responsibility. In order to qualify it was necessary also for the dealer to have been in business at an established retail location for at least two years prior to the application for the plan.

Dealers meeting the requirements of the Standards Committee, entered into direct contract with the bank covering purchase of their conditional sales contracts. The agreement with the bank required that all contracts represent valid deferred payment obligations, not subject to any disputes, offsets or counterclaims, of bona fide purchasers at least 21 years of age, to whom had been sold and installed new and unused gas and electric appliances; that the down payment on each contract had been made in cash, and that no part thereof had been loaned directly or indirectly to the purchaser by the dealer; that if it became necessary to repossess the appliance for any reason whatsoever, the dealer would act as the bank's agent and remove the appliance at its direction. The company, being sponsor of the plan and responsible for

all accounts financed, reserved the privilege of passing on each customer's credit and only accounts approved were accepted for financing.

The agreement further provided for the purchase by the bank of all approved contracts at the contract price of the appliance, less the down payment, less the finance charge included therein, and less an amount equal to 2% of the unpaid balance of the contract, with the understanding that the so-called holdback of 2% be set aside in a special account to provide against loss on bad accounts.

The dealer accepted this 2% discount with the understanding that the paper would be without recourse after one scheduled monthly payment had been made by the customer. In the case of certain classes of equipment, three monthly payments were required.

In determining the carrying charge, rates were arranged on the basis of \$5.75 for a 12 months' contract, with slight increase in cost over longer periods of time. Terms were extended to a period of 36 to 48 months, minimum monthly payment was established at \$3.00, and a minimum down payment of \$5.00 was required on all equipment.

A dinner meeting was held for dealers in our territory and plans were announced for what we termed a major load-building campaign through the sale of gas and electric appliances. We outlined the system which had been set up and explained the terms under which contracts would be accepted for financing. We were immediately swamped with applications. Each application was processed through the Standards Committee and if accepted, was placed on the eligible list for participation. All forms and supplies were furnished the dealers and they were instructed in the proper method of handling contracts.

In order to relieve dealers of embarrassment, credit facilities of the utility were made available at all times for approval of contracts for delivery and installation of equipment. A special transmittal form was designed to expedite the forwarding of contracts for purchase. Contracts received by 9:30 A.M. in the utility office were immediately forwarded to the bank and the dealer received a check the following morning for

purchase of same. Responsibility for the account was immediately assumed by the bank and all accounting and detail work in connection therewith was performed by the bank. Coupon book form of billing was adopted, thus placing the contract on a prepaid basis.

We wished to remove ourselves from the collection responsibility for two reasons, first, from past experience in installment accounts, having previously handled some through another financing company, we found that customers were much more prompt in the payment of their accounts when collections were handled through outside sources. Secondly, we did not want to embarrass the dealer in any way by requiring his customer to pay for appliances purchased through the utility office.

The plan discriminates between the prompt and the slow payers, giving those who pay within 10 days after due date of the installment the benefit of the low financing rate. On accounts which become 10 days past due but are paid within 15 days after due date, a charge of 25 cents is made by the bank for the delayed payment. In case the account becomes 15 days past due, a reinstatement fee of \$1.00 is required on each contract.

While these penalties are indicated on the customer's contract, it is necessary, of course, to notify them and the bank follows the practice of mailing a notice five days after the account becomes delinquent. If a second notice is required, it is mailed five days thereafter.

On repossessed items, the dealer is allowed to repurchase the equipment at an amount determined by the utility to be a fair resale price, at a discount of 30%. Such items may be refinanced by the dealer through the plan.

Once the plan was put into practice, we turned our attention to the liquidation of the unused portion of the 2% holdback. For the purpose of refunding this amount, contracts were segregated into groups of six months each, covering periods of 12, 24, 36, and 48 months' paper, and as each maturity group expired, the unused portion of the 2% holdback was refunded to the dealers who participated within that period.

The bank found it possible, due to the cooperation of the dealers in the collection of accounts, to contribute a dividend of 1% based upon the amount financed. This dividend of 1% was added to the unused portion of the non-recourse reserve on matured contracts and included in the refunds to the dealers.

It is our practice to hold dinner meetings semi-annually. These meetings are not only beneficial and instructive, but it is at this time that the refund checks are given to the dealers.

### Changes in Financing Plan

1. In 1939 financing charge was reduced to a 5% discount rate. Minimum financing charge \$1.00.
2. In 1941 terms reduced in accordance with Regulation W.
3. In 1946 liability of Utility in connection with accounts financed by the Bank eliminated.

Ten Year Analysis of Contracts Value of Merchandise Financed by Term Groups			
Period of Contracts	Value of Merchandise	Amount of Loss on Defaulted Contracts	Per Cent of Value Loss
12 months or less	\$1,367,141	\$ 1,054	.08
13-24 months	1,459,341	3,673	.25
25-36 months	2,884,216	19,607	.68
37-48 months	166,893	1,706	1.02
Total	\$5,877,591	\$26,040	.44

Number of Contracts Financed by Term Groups			
Period of Contracts	Number of Contracts Financed	Number of Contracts Repossessed	Per Cent Repossessed
12 months or less	11,694	50	.43
13-24 months	10,616	109	1.03
25-36 months	17,723	408	2.30
37-48 months	1,138	41	3.60
Total	41,171	608	1.48

Summary of 10-Years Operation April 1935-April 1945			
Number of Approved Dealers			57
Number of Appliances Financed:			
Electric Refrigerators	19,860	Electric Water Heaters	74
Gas Refrigerators	1,385	Gas Water Heaters	2,125
Electric Ranges	679	Ironers	915
Gas Ranges	7,666	Vacuum Cleaners	524
Washers	6,177	Miscellaneous Items	288
Radios	3,727		
Value of Merchandise Financed:			
Dealers			\$ 3,900,903.29
Rochester Gas and Electric Corp.			1,976,688.20
Total Merchandise Value			\$ 5,877,591.49

2% Non-Recourse Fund:		
	Number of Contracts	Amount
Amount withheld on contracts financed	41,171	\$ 94,616.24
Loss on accounts repossessed	608	26,040.19
Balance	40,563	68,576.05
Unused fund returned to dealers		68,200.12
Balance on Hand—Unmatured Contracts		375.93
Analysis of Non-Recourse on Matured Contracts:		
Amount withheld on matured contracts		\$ 94,240.31
Loss on repossessed accounts		26,040.19
Amount unused		68,200.12
Bank dividend		43,769.01
Amount due dealers		111,969.13
Reserved for military accounts		3,300.00
Amount returned to dealers		108,669.13

Analysis of Repossessions	
Number of Payments Made at Date of Removal	Reasons for Repossessions
3 — 30%	76%—non-payment
10 — 70%	12%—moved from territory
Largest number of removals occurred on contracts on which only three monthly payments had been made.	5%—unable to locate
	7%—other reasons

Gas Water Heater Rental Plan	
Cancellations	3,600
Sales	5,100
Rentals still in service	2,100
Total	10,800

tion with accounts financed by the Bank eliminated.

4. Promotion of Financing Plan assumed by dealers' organization (Electrical Association of Rochester, Inc.).

5. 2% holdback reduced to 1½%.

6. Elimination of requirement that dealer be in business at least two years prior to acceptance of application for financing.

7. Financial responsibility based upon dealer's net worth, with a minimum of \$5,000 required to be eligible for partici-

pation in the plan. Must have established business in a store and have adequate service personnel.

We will leave it up to you to decide if it pays to make it easy to buy.

In conclusion—present studies indicate that peace time demand for installation credit will be substantially in excess of anything previously experienced. Now is the time, therefore, for each of us to take inventory to determine if we are equipped to meet this demand.





Thirty-six home service women from the Gas Service Co., the Kansas City Gas Co. and the Wyandotte County Gas Co. at the Home Service Conference in Kansas City, Mo., July 17. Also in the picture are Elsie Lee Miller, instructor of home economics at Kansas State College, seated fourth from the right, and Jessie McQueen, American Gas Association, beside her.

## Home Service Dinner Attracts 170 Teachers

**T**WELVE years ago the Home Service Department of the Southern California Gas Company first entertained the Home Economics teachers of the Los Angeles City schools. Since that time, though there have been occasional interruptions in the program, the dinner has become an annual affair. Most schools in Los Angeles are on Southern California Gas Company's lines, but a few are served by Southern Counties Gas Company, so the dinners have become a joint project.

The popularity of the dinners has led to the expansion of the program so that for the past few years the dinners have been held in each of the five outlying divisions as well as in the Pasadena-Alhambra district.

Members of school boards, superintendents and business managers are also invited. Originally the dinners were used as a means

of bringing to the teaching group the latest news in the gas appliance field and relating that news to classroom problems and procedures. During the war period when appliance manufacture was strictly curtailed, these annual meetings were used as an opportunity to present announcements of the department's latest programs in nutrition and food rationing aids. This year, faced with a lack of news in the appliance picture, the dinners were used as a means of bringing to the attention of school officials and of re-emphasizing to Home Economics teachers the necessity for organized recruiting in the Home Economics field.

The Los Angeles dinner this year, which was held in the auditorium of the Southern California Gas Co., attracted 170 Home Economics teachers.



View of head table at the recent dinner honoring home economics teachers of Los Angeles. Left to right: Dr. Verling Kersey, superintendent of schools; Mrs. Iris Albert, supervisor of homemaking education in senior high schools; Clyde Potter, Southern Counties Gas Co.; Mrs. Charlotte Lebus, supervisor of homemaking education in junior high schools; F. M. Banks, Southern California Gas Co.; Miss Katherine Rathbone, Southern Counties Gas Company.

## Home Service Training Course Sponsored

**T**HE Gas Service Co., Kansas City, sponsored an apprentice training course this summer for juniors in college who were interested in going into home service work upon graduation.

The training course was under the direction of F. M. Rosenkrans, new business manager, the Gas Service Co. Elsie Lee Miller, instructor in home economics at Kansas State College, conducted the three month's course.

All members of the home service departments of the Gas Service Company met in Kansas City two days in July for a training conference. The program included model demonstrations, presentations of home call and school programs, a New Freedom Gas Kitchen discussion, a visual presentation by the Southwestern Bell Telephone Co. and general talks on home service and its place in gas company operation.

## New Finance Plan

**A**NTICIPATING a return to time payment buying by the public, Consolidated Edison Company of New York, Inc., has arranged a new standard finance plan for the purchase of gas and electric appliances and equipment by its customers through authorized appliance dealers, according to an announcement by Brigadier General Ephraim F. Jeffe, vice-president in charge of sales.

Effective on July 15, the time payment program is designed to function at an average annual finance charge of \$4.88 per \$100. It will be available at any of the Consolidated Edison showrooms or at any of the company's Cooperating Appliance Dealers' stores, of which there are 224 in Manhattan, 131 in the Bronx, 277 in Brooklyn, and 179 in Queens.



# Industrial & Commercial Gas Section

HARRY A. SUTTON, Chairman

KARL EMMERLING, Vice-Chairman

MAHLON A. COMBS, Secretary

## Modern Gas Kitchen Equipment

Mr. Bourke, who is now on a four-weeks' trip visiting gas companies, commercial gas cooking equipment manufacturers, and trade associations on the Pacific Coast, delivered this address at the convention of The International Stewards and Caterers Association, in San Francisco, August 14. This is the first of Mr. Bourke's promotional activities on the Pacific Coast, and is part of an enlarged national program to promote commercial gas cooking.

BY JOHN J. BOURKE

*American Gas Association*

have transportation and immigration barriers to contend with. Since the war's end it is reported that few of Europe's youth have sought the food trades as a career.

If the art of preparing fine foods is to endure in this country a vigorous program must be initiated to induce capable, intelligent enthusiastic young American men and women to make food preparation their profession.

To attract high-type personnel to the industry, we must offer better inducements than are available in other industries, in trades which require equal aptitude and intelligence. We must offer wages equal or better than those paid in other industries; we must provide incentive with clearly defined steps of progress; we must give the master craftsman stature and prestige; we must provide the security that is part of every well-planned

personnel program; and we must provide the best in equipment and working conditions.

Modern gas kitchen equipment is a potent factor in providing the last of these requisites, "the best in equipment and working conditions." No food worker can be comfortable and happy, nor can be expected to do an efficient job in a kitchen with a temperature that varies only a few degrees from that of the deeper recesses of Hades.

Modern gas equipment has been designed with an eye to employee comfort. It is built to keep kitchen heat at a minimum. The latest hotel-type ranges are heavily insulated, keeping the heat where it belongs—in the range. Thermostats and other heat controls contribute to the reduction of uncomfortable kitchen heat by obviating the necessity of constantly watching food in ovens.

Newly-developed alloys are being used in casting solid range tops. These metals were developed to cut warpage, grain growth and cracking to a minimum. By decreasing warpage to a minimum, kitchen heat is decreased, for a perfectly flat surface is provided on which flat bottom pots and pans are placed, establishing a flush contact and transmitting the heat to the vessel instead of having it diffused throughout the kitchen, as is true where warpage is present.

### Speed of Gas Important

The speed of the modern range contributes to employee contentment in that less time is required to heat the ovens to cooking temperature than with out-moded non-insulated ranges, thereby eliminating the necessity of having one of the kitchen employees come in early to light the ovens.

During the war period and the hectic period of reconversion which has followed, there have been few radically new pieces of kitchen equipment developed. The manufacturers have been busy trying to make supply meet the demand for existing models. Moreover, the engineers who would normally spend their time developing new equipment have been busily engaged with production problems such as plant set-up, tooling and speeding production. However, there are a few new pieces which you will want to know about.

There is the circulating deep-fat fryer which the manufacturers say takes only 15 pounds of fat and still has the production capacity of a conventional fryer with a 40 pound fat capacity. This is made possible by having a small pump circulate the fat through a gas-heated coil. Because the fat is



John J. Bourke

NEVER in its long commendable history of service to the public has the volume cooking industry engaged in a rehabilitation program that even remotely approached the magnitude of the one on which we are now embarking. From figures compiled by the American Hotel Association we learn that 1½ billion dollars is being spent to recondition hotels. The best estimates say the restaurant industry will spend another 2 billion dollars. Add to this the expenditures of the industrial caterers, hospitals, schools and other mass cooking operations and the figures reach proportions formerly only associated with government spending.

An appreciable part of this reconditioning will involve kitchen equipment. One of the most important factors which must be taken into consideration in deciding what needs attention most is the consideration of the employee.

Until a few years ago most of our first rate chefs, cooks, pastry men and bakers were Europeans who had served a long and arduous apprenticeship on the other side and had come to this country to practice their profession. That source of supply of qualified personnel is now completely cut off, and it is apparent that the famous kitchens of Europe will not again provide these men in the number in which they are needed.

The youth of Europe has been in uniform for the past six or more years and only a handful of craftsmen have been developed. These have been quickly absorbed by their own country, leaving none to seek their fortune in the new world, even if they did not

### NOTE ON YOUR CALENDAR

#### Industrial and Commercial Gas at A. G. A. Annual Convention

Tuesday, October 8—Luncheon and Afternoon Session

Thursday, October 10—Afternoon Session

Rose Room—Hotel Traymore  
Atlantic City

#### A. G. A. Will Sponsor Combined Exhibits at—

National Hotel Exposition, New York, N. Y.—Nov. 11-14

National Metal Congress & Exposition, Atlantic City, N. J.—Nov. 18-22

National Exposition of Power & Mechanical Engineering, New York, N. Y.—Dec. 2-7

Annual Industrial Gas Breakfast during week of National Metal Congress and Exposition—Nov. 20

constantly circulated, less volume is necessary.

Another new and unusual piece of cooking equipment is the rotary cooker. This cooker is really a broiler. The food to be broiled is placed in a pre-heated alloy casserole. The casserole is placed on a horizontally revolving wheel inside the cooker through one of three doors, the door determining the degree of doneness. The food is cooked on the bottom by contact with the pre-heated casserole and from the top by heat from gas-fired ceramic radiants such as are found in the usual heavy duty broiler. When the casserole travels as far as the removal port the food is done to the proper degree and is automatically ejected on a conveyor chain.

This cooker is a step in the direction of automatic cooking in which the element of human error is removed. Such devices should be given serious consideration in face of the current and imminent future shortage of qualified kitchen help.

There have been a few changes in coffee urns and one of them bids fair to revolutionize urn construction. An urn has been developed, the top of which is well below eye-level. This low urn will make it possible to

perform all operations such as brewing, removing leaching bag, cleaning and inspecting the urn without the inconvenience and hazard of climbing on stools and ladders, as has been necessary in the past. This is a major step in the direction of kitchen safety.

Two new developments threaten the cloth urn bag and the filter paper with extinction. One utilizes the principle of capillary attraction and the other is a woven stainless steel urn bag. The former filters the coffee through a specially constructed bottom made of two perforated super-imposed stainless steel sheets; the holes of the upper plate are located above the solid area of the lower plate, with the edge of the upper holes just touching the edge of the lower holes. The coffee liquid, draining down from the coffee grounds, passes through the opening of the upper plate and then edgewise by capillary attraction into the holes of the lower plate and then into the coffee liner below. This urn also includes a seal-welded burn-out proof bottom.

The woven stainless steel urn bag operates in the same manner as the conventional muslin bag but because of its durability has an indefinite life. One has been in use for over six months and shows no evidence of wear.

A departure from the conventional water bath steam tables is the dry hot food storage table. Steam tables give off clouds of vapor which, in many cases, cause annoying condensation, contributing to the discomfort of kitchen personnel. Moreover, the temperature is uniform for all foods stored in the insets and food pans. The dry hot food storage table produces no steam, is heavily insulated, thermostatically controlled and is divided into insulated compartments in such a way that each type of food can be kept at the temperature best suited for its storage.

Another innovation in gas-fired equipment is a roll warmer with humidity control and in step with the trend to closer control of temperatures in all cooking operations is the thermostatically controlled gas griddle.

Style consciousness is becoming more and more in evidence in commercial kitchen planning. Full tile and glass brick construction, and bright metals are the order of the day. Operators are proud of their cooking facilities and want to show them off. Many establishments have open kitchens or windows through which diners can see their food being prepared. In order to provide heavy-duty equipment that will fit into this setting, one of the leading range manufacturers will within the next few months offer a stock model range of bright metal construction inside and out; even the fittings and reinforcements will be of corrosion-resisting metal.

The stainless exterior will provide for ease of cleaning and a spotless modern appearance. As this range will be produced by mass production methods it will be available at a reasonable cost. We have had stainless ranges before but they have been handmade, a factor which adds tremendously to production cost. Aside from its durable bright metal construction this range will have all the features of other modern ranges including an automatic oven lighter with safety shut-off. This device shuts off the gas immediately if the flame of either the main burner or pilot light goes out. When the pilot is lighted the operation is automatic from then on.

#### Vegetable Steamers

Stainless steel vegetable steamers are not a novelty, for there were a few of them produced before the war. However, the demand for bright metal steamers since V-J Day has been so pronounced that it is highly probable that steamers of less attractive and durable metals will soon cease to be manufactured. Experiences provided by war service have brought about better control of steam, and the evacuation of air and condensations have been improved, which changes are embodied in the new stainless vegetable steamers.

The steam-jacketed kettle is another gas-fired stainless piece which is receiving wide acceptance. The new method of draining the latest models and their sanitary valve construction qualify them to meet the very rigid requirements of the United States Public Health Service.

Because of shortages of replacements for worn-out equipment and the lack of experienced food handlers during war-time, the standards of cleanliness and sanitation were allowed to slip in some less reputable eating

## Gas Display Arranged For Metal Congress



*Industrial Gas Equipment Manufacturers Group Conference on Combined Industrial Gas Exhibit at National Metal Congress and Exposition, Atlantic City, November 18-22. Left to right, seated: Laurence R. Foote, The Bryant Heater Co.; Charles E. Cunningham, Selas Corporation of America; L. J. Strohmeier, Eclipse Fuel Engineering Co.; C. F. Petersen, Mid-Continent Metal Products. Standing: Harry A. Sutton, chairman, Industrial and Commercial Gas Section; M. A. Combs, American Gas Association*

**A** PREVIEW of the National Metal Congress and Exposition to be held in Atlantic City's Public Auditorium, November 18-22, indicates that the gas industry will be widely represented in the first postwar American Gas Association Combined Industrial Gas Exhibit.

At this outstanding metals industry event, the A. G. A. Combined Exhibit will occupy the largest single exhibit area in the exposition. A striking and attractive display design will be in keeping with the magnitude and prestige of the gas industry.

The fourteen cooperating gas equipment manufacturers are: American Gas Furnace Co.; Bryant Heater Co.; Burdett Mfg. Co.; Carbomatic Corp.; Eclipse Fuel Engineering

Co.; The Gas Machinery Co.; Gehrich & Gehrich, Inc.; Charles A. Hones, Inc.; Intercontinental Engineers, Inc.; The C. M. Kemp Mfg. Co.; Mid-Continental Metal Products; Selas Corp. of America; Surface Combustion Corporation.

The National Metal Congress and Exposition is always attended by a large number of industrial gas men and manufacturers' representatives, and from all indications, this year will be no exception.

A highlight of Metals Week in Atlantic City will be the traditional Industrial Gas Breakfast on November 20 where gas men, industrialists and manufacturers meet with the editors of the metals magazines for an annual get-together.

places. And because of personnel shortages in local health departments, nothing could be done to correct this condition. Because of the deplorable condition into which some of these "greasy-spoon-type" operations had let themselves fall, they have put the entire mass feeding industry under a cloud. Many of our cities are performing a laudable public service by putting on intensive programs to see that health regulations are complied with to the letter.

The gas industry endorses these programs and is cooperating by exerting every effort to provide the necessary equipment to maintain proper standards of cleanliness and sanitation. Plenty of hot water and elbow grease are two important components of the program to protect public health. Gas is providing hot water for all needs in commercial kitchens.

Where the present facilities are not adequate to provide hot water of 180 degrees for sterilization of silver, dishes and glassware, gas booster heaters are being installed.

Specialty-designed self-contained silver and glassware sterilizers are available. These may be used as a separate unit or built into the dish table.

### Mechanical Dishwashers

Because of the heavy demand for present models, mechanical dishwashers have changed little from the pre-war models. Some change has taken place in the structure because of war requirements. As machines were often used in the service in areas far removed from maintenance facilities, durability and assured continuous operation were prime considerations in their construction. These developments have been carried over to the commercial models now in production and will provide a more sturdy, trouble-free machine than we have known heretofore.

Another development in dishwashers is the application of a hydraulic drive to replace the belt conveyor in automatic rack-type machines. This device, equipped with a speed control pushes the rack completely out of the machine all the way from the feed end to the clean dish table.

Pre-cleaning of dishes before they enter the dish machine is a new development in dishwashing technique. One type uses the principle of having a hard stream of water remove the excess food soil from dishes prior to their entering the washing machine.

A newly-developed sculling machine is a device placed in line with and just in front of the mechanical dishwasher. It removes the bulk of food soil before the utensils enter the dishwashing and sterilizing machine. Heavy garbage is caught in a perforated removable basket as it is washed from utensils by a forced water spray. The water used is the overflow from the rinse tank of the dish machine. By removing the heavy volume of soil, the detergent is conserved to perform its work of removing hard-to-wash soil from utensils.

The automatic silver washer and dryer, though not a piece of gas equipment, must be mentioned wherever sanitary equipment is discussed. This machine has been improved in construction since the wars end and is being widely used by many establishments where

sanitation gets its proper consideration. The unit is operated as follows: The silver is placed in a special basket and passed through the dish machine or immersed in hot water to remove excess food soil. The silver is then poured into the silver washer and dryer where it is washed in a detergent solution. While still in the machine it is rinsed by hot water under high pressure, then dried with a hot air blast. When the operation is completed the machine stops automatically. The silver is clean and sterile and ready for use. Besides, saving labor, the toweling of silver is eliminated, which from the sanitation standpoint is a more important consideration.

In conclusion, the American Gas Association is eager to be of every possible service to those engaged in volume cooking. Effort is continuously being made to provide improved gas equipment through research in its own laboratories, with funds appropriated for research development with outside agencies, and in the laboratories of member utilities and manufacturers.

The Association acts as a clearing house of information regarding equipment that is used in the application of heat in volume-feeding

establishments. It also operates two testing laboratories where gas appliances are tested to assure that they conform with the American Standards requirements. Appliances which pass these requirements are given the A. G. A. Seal of Approval, which indicates that the appliance contains all the necessary material and is designed to insure safety of operation, maximum efficiency and durability. Many of our cities require that all gas equipment installed within their jurisdiction, bear the A. G. A. Seal of Approval.

Such work as the Association's research programs approval requirements and testing equipment have improved gas equipment and given gas such public acceptance that nine out of ten meals served in public eating places are now cooked with gas.

As the trade association of your local utility, the A. G. A. will provide you with technical information which might require facilities beyond those of your local utility, supply literature on the care, maintenance, and most efficient use of gas equipment, is ever on the lookout for new ways to help you and solicits the suggestions of members of the International Stewards and Caterers Association.

## Gas Appliance Display at Hotel Exposition



*Gas Appliance Manufacturers Group Conference on Combined Commercial Cooking Exhibit at National Hotel Exposition, Grand Central Palace, New York, November 11-14. Seated left to right: Chester A. Shear, Standard Gas Equipment Corp.; Daniel J. Brogan, The G. S. Blodgett Co. Inc.; Harry A. Sutton, chairman, Industrial and Commercial Gas Section; Arthur R. Pitman, J. C. Pitman and Sons, Inc. Standing: John J. Bourke, American Gas Association; John Heilig, Savory Equipment, Inc.; M. A. Combs, American Gas Association*

THE Thirty-First National Hotel Exposition, Grand Central Palace, New York, November 11-14 will be the year's best opportunity to see the latest in gas food service equipment which will be displayed in the Combined Commercial Gas Cooking Exhibit sponsored by American Gas Association and leading manufacturers of commercial gas cooking equipment. At this first postwar combined exhibit, filling the entire north wall of the main exhibit floor, nine of the leading manufacturers of gas cooking equipment will have their latest appliances on view for hotel and restaurant men engaged in that vast segment of our national economy—public feeding.

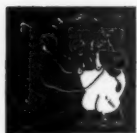
A variety of equipment will be shown in-

cluding ranges, fryers, ovens, warming tables, toasters and allied equipment for the commercial kitchen. The cooperating manufacturers in the Combined Exhibit are: American Stove Co.; The G. S. Blodgett Co., Inc.; The Cleveland Range Co.; Detroit-Michigan Stove Co.; Ershler & Kruken Inc.; J. C. Pitman & Sons, Inc.; Savory Equipment Inc.; Standard Gas Equipment Corporation.

An attractive setting will be provided for this exhibit, which will be attended by thousands of hotel men. Commercial gas men have always been well represented at the Hotel Exposition, and will have this opportunity of meeting with gas equipment manufacturers, users and potential users of gas cooking appliances.



## gas grapevine



annual meeting time is almost here and we invite your close consideration of our section program outlined elsewhere in this issue. Two afternoons, Tuesday, October 8, and Thursday, October 10, are set aside for industrial and commercial gas topics and some of our top gas men will present papers of interest to all.

don't forget the big luncheon that starts off our section's activities. That's on Tuesday, October 8 in the rose room of the hotel Traymore, Atlantic City. Good company, good food and outstanding speaker. Get your tickets early—when you register—as there will be a big crowd.

what won't they use gas for? The latest from the Pacific Coast is a gas-fired boiler supplying hot water to wash railway express agency trucks to keep them spick and span.

oh by the way, we're working on our traditional industrial gas breakfast that will be held on November 20 during the metal exposition that week in Atlantic City. Make your plans now and look for future announcements as to place and speaker.

another item from Portland Oregon is about gas-heated tar vats at King Brothers where they need precision temperature on tar to cover pipes. Then an auto service company in the same town has doubled its capacity for cleaning greasy auto parts with gas-fired automatic vat-type cleaners.

and not quite so far across the country where ye scribe is writing this is a new bakery installation in Chicago where over 25 million cookies are produced every day. One cookie bake oven alone is nearly a block long and has 156 gas burners which speed the cookies through the oven in 4 minutes each one baked to a delicious brown and perfect.

see you in Atlantic City first week of October.  
a. q. s.

## Natural Gas Use Up 217 Per Cent

THE utilization of natural gas in 1944 was 217 percent greater than in 1925, and the total value of the gas to consumers increased 210 percent. E. Holley Poe, head of a New York firm of natural gas consultants, testified recently at the Federal Power Commission's investigation of the natural gas industry.

Mr. Poe also stated that natural gas is available to approximately 68,000,000 persons in 33 states and the District of Columbia.

## New Edition of Case Histories

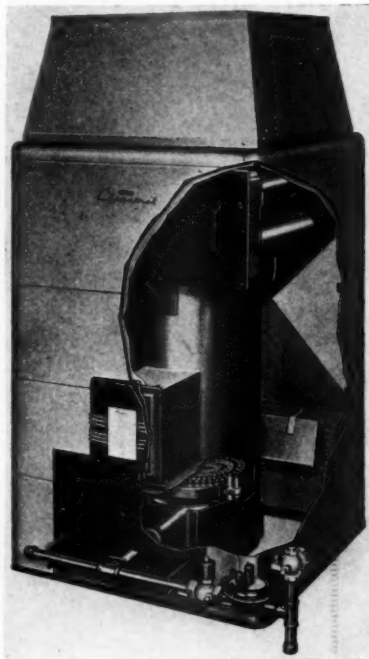
A NEW edition of "Case Histories of Successful Mass Feeding Installations," published by the G. S. Blodgett Co., Inc., of Burlington, Vermont, is now ready for distribution.

In thirty-six attractively colored pages twenty-eight case histories are used to depict good kitchen design in institutions, hospitals, schools, industrial feeding, restaurants and hotels. Well-known installations are used throughout. Liberally illustrated with kitchen plans and installation photographs, and annotated with data on menus and services, this manual is expected to be of considerable value to architects, designers and operators of commercial and institutional kitchens, to dietitians and training schools.

A foreword by I. S. Anoff, president of the Albert Pick Co., Chicago, Illinois, and chairman of the Food Service Equipment Industry, Inc., and an article on the "Essentials of Kitchen Planning," by Harry Blumberg, vice-president of Nathan Straus-Duparquet, Inc., are included with pertinent prefatory material.

Copies are available upon request to the G. S. Blodgett Co., Inc., 50 Lakeside Avenue, Burlington, Vermont.

## Gas-Fired Furnace



Now being shipped is the new Mueller Climatrol Type 101 steel gas-fired gravity furnace, latest addition to the line of heating and air conditioning equipment made by the L. J. Mueller Furnace Company. Designed for the smaller home and replacement market, the A. G. A. approved Type 101 Furnace is made in sizes of 90,000 and 135,000 max. B.t.u. inputs

## Southern Natural To Expand

SOUTHERN Natural Gas Co., Birmingham, Alabama, has been authorized by the Federal Power Commission to construct and operate about eighty-miles of sixteen-inch natural gas transmission pipeline extending from Pickens, Mississippi, to the Grinville Gas Field located in Jefferson Davis and Simpson Counties, Miss. Total cost of the facilities is estimated to be \$2,608,200.

Southern Natural has made a twenty-year purchase agreement with the Superior Oil Co., for gas produced in the Gwinville gas field.

Southern Natural is engaged in the transportation and wholesale delivery of natural gas produced in Texas and Louisiana through its pipeline system extending from the Logansport gas field in Texas through Louisiana, Mississippi, Alabama and into Georgia.

## Sales Training Schools Planned

PLANS for sales training schools for industrial gas men and commercial gas men are progressing rapidly. Lawrence E. Biemiller, Consolidated Gas Electric Light and Power Company of Baltimore, is chairman for overall planning of both schools. Karl Emmerling, The East Ohio Gas Co., is devoting his time to the industrial school and Roy E. Wright, NEGA Service Corp., Cambridge, is heading up plans for the commercial school.

It is planned to hold the schools at some central point during the Spring of 1947. Each school will provide an intensive one-week course.

The proposed commercial gas school will cover all phases of commercial gas utilization. It will provide instruction on the various appliances used, how the commercial gas kitchen should be laid out and how to sell gas and gas equipment for use in commercial kitchens.

The industrial gas school will train men in the technical and sales problems involved in selling gas for industrial uses. It will provide instruction to cover the various methods of industrial heating and to explain typical applications and the latest developments in products and methods.

## Put or Take

Some fellows stay right in the rut,  
While others head the throng.  
All men may be born equal, but  
They don't stay that way long.

There is many a man, with a gallant air,  
Goes galloping to the fray;  
But the valuable man is the man who's there  
When the smoke has cleared away.

Some 'don't get nuthin' out of life,'  
But when their whines begin,  
We often can remind them that  
They don't put nothin' in.

—Office Economist.



# Technical Section

LESTER J. ECK, Chairman

C. S. GOLDSMITH, Vice-Chairman

A. GORDON KING, Secretary

## Sulfur in Manufactured Gas Its Effect Upon Dew Point of Flue Products

BY WILLIAM BUCKLEY

Engineering Division, Servel Inc.,  
Evansville, Indiana

It is generally realized that sulfur compounds occurring in manufactured gas particularly manufactured and mixed gases give rise to potentially corrosive combustion products. Also it is apparent that the high efficiencies of modern gas-fired equipment tend toward increased corrosion rates in flue systems. As a result a considerable amount of research work in this field has been carried out by appliance manufacturers, gas utilities and the American Gas Association. The results of much of this work have been published but the papers are found in many different journals making it difficult for an individual to obtain a complete picture of the subject.

The purpose of this paper is to correlate some of the more important findings and to suggest several factors to be given consideration in future investigation of the subject. In the present paper primary consideration will be given to factors affecting dew points.

### Nature of Flue Gas Corrosion

Since the flue products from manufactured gas are a complex mixture containing a large fraction of moisture and a variety of soluble gases, a number of chemical combinations with corrosive potentialities are possible. However, almost without exception, corrosion deposits in flues contain quantities of sulfates and only traces of other anions. Thus, basically flue gas corrosion may be reduced to a sulfur corrosion problem. This may be somewhat of an over-simplification.

While no data are at hand to offer supporting evidence, it seems highly probable that some of the minor constituents in flue gas, such as oxides of nitrogen, may have catalytic effect upon one or more of the steps in the sulfur corrosion mechanism. This theory might explain some of the discrepancies which have appeared in the literature on this general subject.

The predominance of sulfates in flue corrosion products suggests sulfuric acid as the principle corrosive agent. Of course, it is possible sulfurous acid is the acid medium and the resulting sulfites are later oxidized to sulfates. However, corrosion products found where operating conditions are such as to give temperatures above the "theoretical" dew point, indicating condensation of sulfuric acid principally, are generally similar to those

found where temperature conditions would permit sulfurous acid condensation. It seems logical to assign the same mechanism to both instances and give sulfuric acid the chief role in the corrosion picture. Undoubtedly, there are other contributing factors such as the sulfurous acid, hydrolysis products of certain sulfates, and minor flue gas constituents, but consideration of sulfuric acid alone will bring out the more important aspects of the problem.

Corrosion due to sulfur containing flue gases has been considered to be of two types, "wet" or "dry." Dry corrosion is that occurring above the dew point of the gas and is caused by adsorption on the flue surfaces or flue deposits. This mechanism has been proposed primarily as a means of explaining some field occurrences of corrosion where it seemed doubtful that condensation had taken place. Quantitatively the amount of corrosion which can be caused in this manner is small.

The serious occurrences of flue corrosion are those in which condensation has taken place to wet the exposed surfaces. Certainly this is true in domestic appliances and, in other fields, such as industrial boilers and accessories, sulfur corrosion in significant amounts is found only when operating conditions permit condensation. Condensation can occur more easily than is realized by many which may explain some assumed occurrences of "dry" corrosion. Gyngell and Browning (12) conclude that condensation must occur before sulfur in flue gas can be corrosive. Thus, the dew point of flue gas and the factors affecting it are of great importance in understanding flue corrosion.

### Sulfur in Fuel Gases

With regard to sulfur in gas as distributed there is usually little in forms other than organic sulfur. Hydrogen sulfide is removed by iron oxide boxes or liquid purification methods to such an extent as to leave only 0.5 grains per 100 cubic feet or less in the purified gas, indicated by a negative reaction to

standard lead acetate paper. Organic sulfur commonly remains to the extent of 5 to 25 grains. Other impurities such as ammonia and hydrogen cyanide are partially removed with considerable variation among utilities as to the residual quantities. However, at worst only a few grains per 100 cubic feet are left in the gas. Thus, the principal remaining effort in gas purification must be concerned with the organic sulfur. Removal of this impurity is complicated by its nature and lack of knowledge of its properties. As it consists of a variable mixture of thiophenes, mercaptans, carbon disulfide, and carbonyl sulfide (2, 16, 20), a single chemical removal method is not sufficient and recourse to catalytic methods is the only tried procedure today.

The catalytic processes are not completely satisfactory methods though they have been used in England and to a limited extent in this country. Some constituents of organic sulfur resist catalytic oxidation and catalyst life is adversely affected by unsaturated hydrocarbons and other substances found in manufactured gas. Knowledge of the forms of organic sulfur, method of analysis, and some of their chemistry has been fragmentary in the past which is a considerable handicap in the development of purification methods. It is in this field, chiefly, that the Organic Sulfur Subcommittee of the Gas Conditioning Committee of the American Gas Association

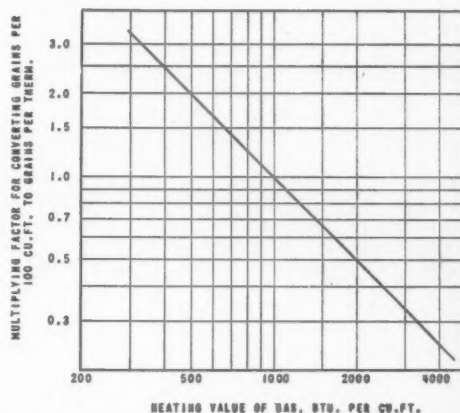


Fig. 1. Factors for converting sulfur contents in grains per 100 cu.ft. to grains per therm

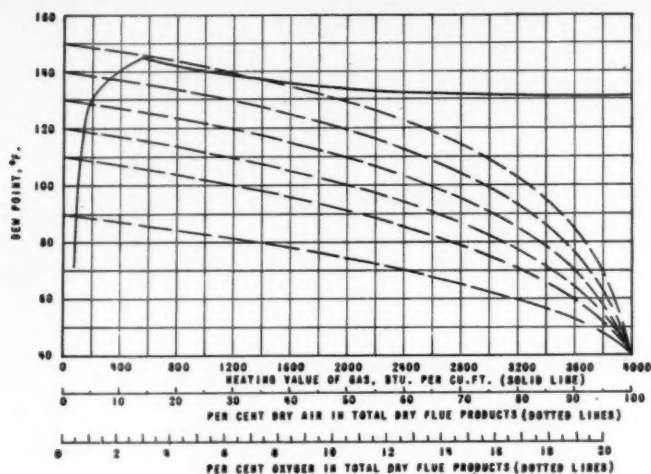


Fig. 2. Theoretical dew point of flue products from gaseous fuels. (Solid line—dew point with theoretical air vs. heating value. Dotted lines—dew point vs. air in flue products. Based on gas sat'd. at 60° F. and air 50% sat'd. at 60° F.)

tion has been directing its efforts. The findings of this group are well known through the progress reports and discussions which have been published (1, 7, 8, 9, 10, 11, 13, 17). This fundamental research undoubtedly will lead to great improvements in methods of removing organic sulfur.

Though catalytic processes are not completely satisfactory their use would be of considerable help in reducing the sulfur contents of manufactured gas. The cost factor has been one of the principal reasons for their limited acceptance. If published information is reasonably correct, this should not be too great a stumbling block. Most estimates place the cost of catalytic removal or organic sulfur at 1.5 to 2 cents per thousand cubic feet (2, 5, 6). Even using the higher figure this amounts to less than fifty cents per year for the gas used by a current model eight cubic foot gas refrigerator. Elimination of one service call would pay for two or three years treating costs on the gas used by the refrigerator without considering many of the intangible savings.

#### Unit of Measurement

When considering the effect of sulfur or other impurities in flue gases their concentration therein is the important factor rather than their concentration in the fuel gas. Unfortunately the common unit used for expressing sulfur contents of fuel gas, grains per 100 cubic feet, does not provide an independent measure of sulfur concentration in the resulting flue gas. Since flue gas volumes are roughly proportional to the heating value of the gas (2, 25), sulfur contents in terms of heating value would give figures which would indicate concentrations in the flue gases for comparative purposes and also show the relative quantity of sulfur in the fuel gas supplied to an appliance.

In order to use units that are familiar to the gas industry and also keep the same order of magnitude for sulfur contents, sulfur contents in the balance of this paper will be expressed in grains per therm. Fig. 1 provides conversion factors for changing data from one unit to the other. This suggested

unit affords direct comparison of various gases as shown in Table I and also simplifies the presentation of much of the data on sulfur in flue products. Adoption of this unit by the gas industry is recommended.

TABLE I

Heating Value of Fuel Gas	Relative Concentration of Sulfur in Flue Gas	
	5 grains S per therm in fuel gas	5 grains S per 100 cu. ft. fuel gas
400	1.00	2.50
500	1.00	2.00
600	1.00	1.67
800	1.00	1.25
1000	1.00	1.00
2000	1.00	0.50
3000	1.00	0.33

#### Dew Point of Flue Gases

The fact that most flue corrosion occurs as a result of condensation makes the dew point of flue gases assume great importance. With gaseous fuels the dew point of flue products is more likely to be reached and condensation troubles result than with liquid or solid fuels because (a) their flue products contain larger fractions of water vapor, and (b) flue temperatures tend to be lower because of the higher efficiency of the combustion equipment used.

The dew point is the highest temperature at which a liquid phase may exist in equilibrium with the vapor phase. More simply it is the temperature at which condensation begins as a gaseous mixture cools. Where the gaseous mixture consists solely of water vapor and an inert gas the dew point is that temperature at which the vapor pressure of water is equal to the partial pressure of the water vapor in the gaseous mixture. Applying this assumption to flue gases the theoretical dew point results.

When burned with theoretical air, gaseous fuels give flue gases having theoretical dew points quite close together, being between 135 and 145° F. for practically all manufactured and natural gases. As the flue products are diluted with excess air the theoretical dew point drops. This is best shown by Fig.

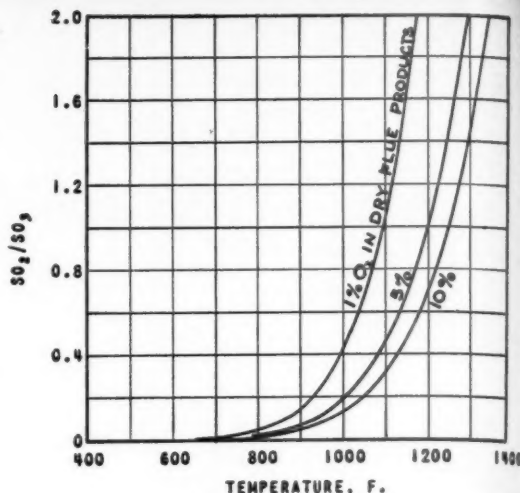


Fig. 3. Equilibrium  $SO_2/SO_3$  ratio

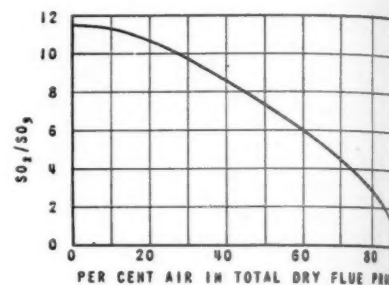


Fig. 4.  $SO_2/SO_3$  ratio in flue gas from gaseous fuels

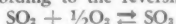
2 in which the dotted lines show dew point as a function of the air in the flue products (2, 25). Also shown in this figure as a solid line is the approximate curve relating theoretical dew point with no excess air to the heating value of the fuel. This is the smooth curve drawn through the values calculated for a large number of commercial fuels.

The use of Fig. 2 will give dew points generally not more than 3-4° F. in error which is sufficiently close for most purposes. As an example consider a natural gas having a heating value of 1000 B.t.u. per cubic foot burned with sufficient air to give 6.0% oxygen in the flue products on a dry basis, i.e. by Orsat analysis. Using the solid line with the scale of heating value we have 140° F. as the theoretical dew point for this gas burned with no excess air. Following the dotted line sloping downward from 140° F. dew point with no air in the flue products to the point in line with 6.0 per cent oxygen we have the corrected dew point of 130° F.

Since flue gas is a complex system in which the water vapor is associated with a variety of soluble gases as well as inerts, a number of chemical combinations are possible and the actual dew point may be far from the theoretical. Consideration of the solubilities and vapor pressure data of the possible combinations indicates sulfur trioxide to be the only one that can affect the dew point appreciably. All other constituents of the flue products may be neglected in this regard except as they

act as inert substances in diluting the vapor volume (25).

Sulphur trioxide is not formed directly during combustion. Sulfur in the fuel burns to sulfur dioxide which in turn forms sulfur trioxide according to the reversible reaction.



The quantity of sulfur trioxide in the flue gas depends upon the extent this reaction goes to the right as well as the amount of sulfur in the gas burned. Writing the equilibrium equation for this reaction in terms of partial pressure we have,

Alternate Form

$$K_p = \frac{P_{\text{SO}_3}}{P_{\text{SO}_2} \cdot p_{1/2\text{O}_2}} \quad K_p = \frac{P_{\text{SO}_3}}{P_{\text{SO}_2} \sqrt{P_{\text{O}_2}}}$$

This may be rewritten as

$$\frac{P_{\text{SO}_3}}{P_{\text{SO}_2}} = \frac{1}{K_p (p_{1/2\text{O}_2})} \quad \frac{P_{\text{SO}_3}}{P_{\text{SO}_2}} = \frac{1}{K_p \sqrt{P_{\text{O}_2}}}$$

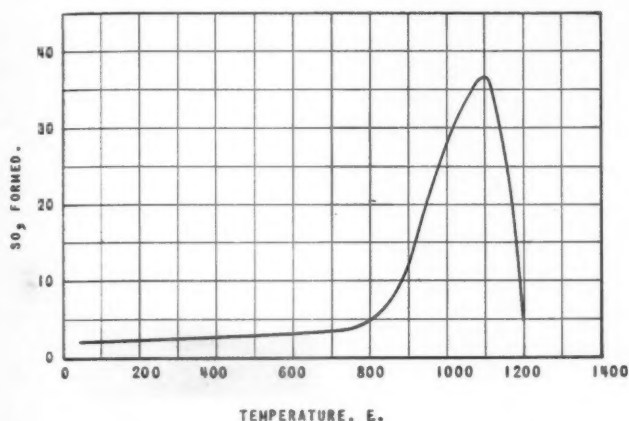


Fig. 5.  $\text{SO}_3$  formation in flue gas in contact with rusty mild steel

This ratio is plotted in Fig. 3 as a function of temperature for three oxygen contents of flue gases and published values of  $K_p$  (6). It will be noted that this predicts practically complete conversion to sulfur trioxide at flue gas temperatures if equilibrium is attained. Actually the reaction goes only partially towards equilibrium. Only a limited number of experimental values of the  $\text{SO}_2/\text{SO}_3$  ratio are available (15, 18, 26).

The most complete data are those of Yeaw and Shnidman (26) plotted in Fig. 4. Other available data fall reasonably close to this curve although primarily below it. Apparently only about one-tenth of the equilibrium amount of sulfur trioxide is formed under test conditions employed. However, this is an uncertain factor. Analytical methods are none too certain as applied to the small quantities of these gases found in flue gases and, in addition, some dusts, metallic salts in the flue, or flue and combustion chamber materials themselves may have catalytic effect upon the conversion reaction. Harlow (14) found considerable additional sulfur trioxide would be formed by passing flue gases over heated rusty mild steel (Fig. 5).

Since the steel surfaces rusted almost immediately when exposed to the flue gases, no data for clean steel is available. However,

treatment to produce a temporary non-oxidizing surface indicated negligible formation of sulfur trioxide in the absence of rust over the temperature range covered in Fig. 4. Other data (4) obtained with much higher sulfur concentrations in the gas indicate iron oxide to be an intermediate in the formation of a catalytic surface rather than a catalyst itself.

Since sulfur trioxide is the prime factor, other than water vapor, affecting the dew point, the uncertainty concerning  $\text{SO}_2/\text{SO}_3$  ratios creates equal uncertainty in the dew point. Thus, dew point is not a fixed property of flue gases. It depends upon the combustion equipment and conditions of operation as well as its composition. Furthermore, experimental determination of dew point have only limited application unless the fuel gas is burned in the actual commercial equipment to which the data is to be applied. Even then

mental data in the low range of concentrations met in flue gases. Smoothed curves of his data are plotted in Fig. 6. With these curves the true dew point can be read directly knowing the concentration of water vapor and sulfur trioxide in the flue gas. Fig. 7 was prepared in this manner using approximate flue gas and water vapor volumes and  $\text{SO}_2/\text{SO}_3$  ratios from Fig. 4. For most cases Fig. 7 provides a satisfactory estimate of the minimum dew point elevation due to sulfur. As will be noted, the elevation in dew point is roughly  $1^\circ \text{F.}$  for each grain of sulfur per therm of fuel gas over the usual range of excess air percentages. At this point it should be recalled that the possibility of condensation and resulting corrosion increases with elevation of the dew point.

Taylor's data in Fig. 6 show the large rise in dew point which is caused by very small amounts of sulfur trioxide in the flue gases.

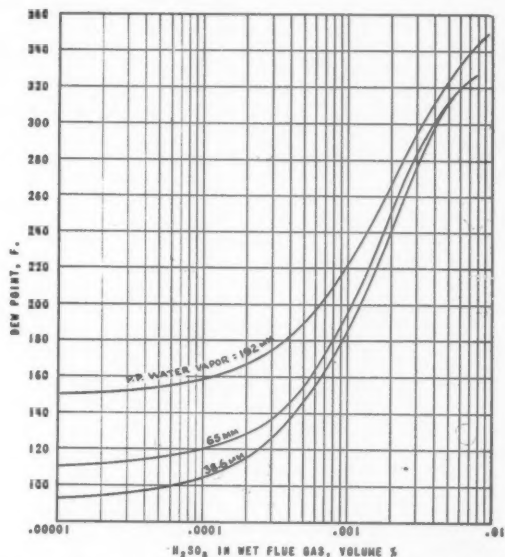


Fig. 6. Dew point of flue gases as a function of water and  $\text{H}_2\text{SO}_4$  concentration

it must be realized that changing conditions with use may also change the dew point.

Hence, at best, approximate values are probably all that can be obtained and, lacking other information,  $\text{SO}_2/\text{SO}_3$  ratios shown in Fig. 4 may be used. In view of the data available Fig. 4 seems conservative, i.e., it predicts sulfur trioxide concentrations that give dew points on the low side rather than on the high side.

Once the amount of sulfur trioxide in the flue gas is known or assumed calculation of the dew point is straight forward. Several charts are available for determining dew points if the per cent  $\text{SO}_2$  is known or if one is willing to accept the  $\text{SO}_2/\text{SO}_3$  ratio used in preparing the chart (2, 15, 25, 26). These charts have the disadvantages of being difficult to read in the range of sulfur contents usually encountered in manufactured gas as distributed and the fact that they are based on extensive extrapolation of vapor pressure data for sulfuric acid solutions.

Recently Taylor (22) presented experi-

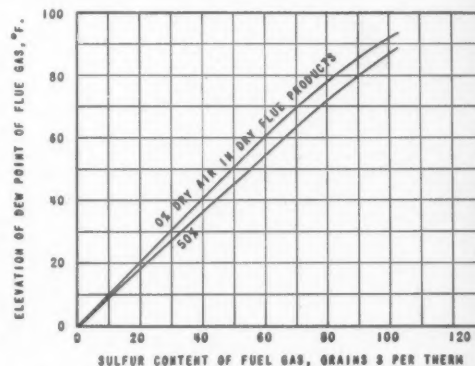


Fig. 7. Elevation of the dew point of flue gases

An equivalent percentage of sulfuric acid in the gas of only 0.001 per cent will give a dew point elevation of  $72^\circ \text{F.}$  with 25.2% water

vapor in the gas. If conversion of sulfur to sulfur trioxide were complete, this much elevation in dew point could be caused by only 6 grains of sulfur per therm. It is fortunate the conversion of sulfur dioxide to sulfur trioxide does not reach equilibrium in common practice. Also, it is easy to see that very large dew point elevation and resulting condensation at high temperatures can take place if flue or combustion chamber conditions catalyze the reaction to any great extent. Harlow (14) was able to raise the dew point of flue gases from slightly under 140° F. to 350° F. by passing them over heated aluminum sprayed steel. As a corollary to this it seems highly possible that suitable materials in the flue and combustion chambers such as vitrified coatings, high chrome steels, or other metals which do not oxidize readily would retard the conversion reaction thereby reducing the effect of sulfur upon the dew point. Limited data (4, 14) have been published in confirmation of this viewpoint.

While dew point calculations are little more than estimates, chiefly because of lack of knowledge of the actual sulfur trioxide concentration, the curves and data herein are in fairly good agreement with the limited number of experimental values available (15, 18, 19, 21, 24, 26).

### Condensate in Flue Systems

When condensation takes place in flue gases containing sulfur trioxide, sulfuric acid of considerable strength may be formed. In addition other acidic constituents of the flue products dissolve making a very corrosive liquid. Sulfuric acid is the chief corroding agent but the other dissolved substances, particularly oxygen, cannot be ignored since they undoubtedly accelerate corrosion even if they do not directly attack flue surfaces. The potential strength of the sulfuric acid is not generally realized. Fig. 8 shows the concentra-

tion of the first liquid as a function of the true dew point and the water vapor partial pressure. The data is that for total pressures taken from the International Critical Tables but may be considered as partial pressure data since the pressure of sulfuric acid is negligible compared with that of water in the range of concentrations encountered in flue gases.

If we accept the definite values of the  $\text{SO}_2/\text{SO}_3$  ratio from Fig. 4, we may express concentration of the first condensate formed as a function of the sulfur content of the fuel since the reduction in partial pressure of water vapor caused by air dilution is very nearly exactly offset by the increased oxidation of sulfur dioxide. A curve so calculated is shown in Fig. 9. It will be noted acid strength of 30 to 50% are possible in condensate from the usual manufactured gas. Actually these acid strengths represent only the first condensate to appear and the liquid would become weaker as more condensation takes place from a given quantity of gas. However, in a flue system the gas is continually replaced by fresh flue products so liquid concentrations will remain high unless copious condensation takes place.

### Conclusions

Sulfur in manufactured gas is the most important factor involved in flue system corrosion because of its effect upon dew point as well as the acid condensate it produces. Sulfur in the form of sulfur trioxide raises the dew point considerably even in small concentrations. The extent of dew point elevation is affected by the completeness of the conversion of sulfur dioxide to sulfur trioxide and, therefore, is a function of the conditions of operation and the materials used in the flue system as well as the composition of the gas. Further investigation of this conversion reaction is suggested in addition to the research on other aspects of the sulfur problem now in

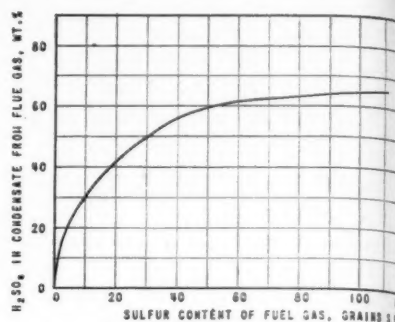


Fig. 9. Concentration of  $\text{H}_2\text{SO}_4$  in the first flue gas condensate

progress. It is recommended that sulfur contents be expressed as grains per therm rather than the customary grains per 100 cubic feet in order to place all gases on the same basis in regard to corrosion potentialities.

### REFERENCES

1. Anthes, J. F., *Am. Gas Assoc. Proc.*, 19, 695 (1937).
2. American Gas Association, "Fuel-Flue Gases," 20-29, 91-99, 104-114, 145-146, 180-185, A. G. A., 1940.
3. Browning, B. L. and Kress, Otto, *Tech. Assoc. Paper Pulp Ind. Papers*, Series 18, 213 (1935).
4. Denig, F., *Am. Gas Assoc. Proc.*, 21, 558 (1939).
5. Furnas, C. C., ed., "Rogers' Industrial Chemistry," 270-71, 591, 602, D. Van Nostrand Co., 1942.
6. Guernsey, E. W., *Am. Gas Assoc. Proc.*, 24, 293-4 (1942).
7. Guernsey, E. W., *ibid.*, 25, 257-8 (1943).
8. Guernsey, E. W., *ibid.*, 26, 414-6 (1944).
9. Guernsey, E. W., *Am. Gas Assoc. Monthly*, 25, 118-21 (1943).
10. Guernsey, E. W., *ibid.*, 26, 44-46 (1944).
11. Gyngell, E. S. and Browning, W. J., *Coke Smokeless Fuel Age*, 2, 216-18 (1940).
12. Hagerman, O. S., *Am. Gas Assoc. Proc.*, 19, 691-4 (1937).
13. Harlow, W. F., *Engineering*, 156, 497-500 (1943).
14. Johnstone, H. F., *Univ. Ill., Eng. Expt. Sta. Circ.* 20 (1929).
15. Kemper, W. A. and Guernsey, E. W., *Am. Gas Assoc. Proc.*, 24, 364-74 (1942).
16. Lehman, H. C., *ibid.*, 24, 292 (1942).
17. Macomachie, J. E., "The Deterioration of Domestic Chimneys," The Consumers Gas Co., Toronto, Canada, 1932.
18. Morgan, W. R., *Univ. Ill., Eng. Expt. Sta. Circ.* 22 (1934).
19. Riesz, C. H. and Wohlberg, C., *Am. Gas Assoc. Proc.*, 25, 259-70 (1943).
20. Shnidman, L., *Am. Gas Assoc. Proc.*, 17, 706-25 (1935).
21. Taylor, A. A., *J. Inst. Fuel*, 16, No. 86, 25-8 (1942).
22. Tones, J. A., *Gas J.*, 245, 185-6 (1945).
23. Yeaw, J. S. and Shnidman, L., *Ind. Eng. Chem.*, 27, 1476-9 (1935).
24. Yeaw, J. S. and Shnidman, L., *ibid.*, 28, 999-1004 (1936).
25. Yeaw, J. S. and Shnidman, L., *Power Plant Eng.*, 47, No. 1, 68-71 (1943). *Ibid.*, 47, No. 2, 69-71 (1943). *Ibid.*, 47, No. 3, 73-5 (1943).

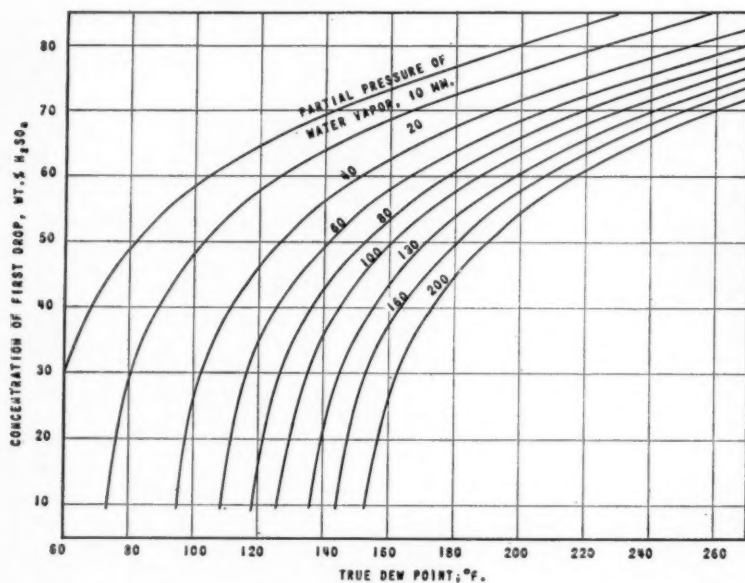


Fig. 8. Concentration of  $\text{H}_2\text{SO}_4$  in the first drop at the dew point of flue gases

## Gas Water Heater Shipments Jump

WITH the shipment of 401,167 gas-fired water heaters during the first five months of 1946, the Gas Appliance Manufacturers Association reports an increase of 68% over the same period in 1945.

G. A. M. A. reported that during the best pre-war appliance year, only 281,416 water heaters were shipped, which means that the 1946 shipments are already 142% over 1941.





## Laboratories

GEORGE E. WHITWELL, Chairman

R. M. CONNER, Director

### Calvert Rejoins Staff

LIEUTENANT EDWARD C. CALVERT, aerological officer with the United States Navy for the past three years, has returned to the Laboratories and resumed his duties in the research department. He is currently engaged in an investigation of high heating value butane-air mixtures for the purpose of selecting an appropriate test gas.

Lieutenant Calvert graduated from Penn State College in 1941 with a degree in Petroleum and Natural Gas Engineering. He joined the Laboratories staff immediately upon graduation.

### Combination Range Requirements Proposed

APPROVAL requirements for combination ranges, separate and distinct from those for standard gas ranges, have been formulated by a special subcommittee of the range requirements group, appointed by its chairman, C. C. Winterstein.

The new group met in Boston on June 27-28 with advisory representatives of manufacturers and utility companies. Resulting requirements will be presented to the gas range subcommittee for approval at its next meeting.

The proposed requirements cover only dual oven type combination ranges, in which the oven is heated either by gas or supplementary fuel. Due to specialized construction, peculiar to these ranges, it was agreed that requirements covering them could not duplicate those for straight gas ranges. Appropriate revisions have therefore been included to make the proposed text applicable to combination units.

For example, since dual oven ranges must be located appreciable distances from walls, accessibility for adjusting or servicing, from the front of the range is not required as in the case of conventional gas ranges. On the other hand, damper rod mechanisms are often operated directly from oven or broiler gas valves. Accordingly, a requirement has been added to eliminate leakage caused by binding of mechanisms or displacement of valve plugs.

Important modifications have been made in performance test procedures. Top burner and pilot operation and automatic top lighting must be satisfactory when the oven is maintained at baking temperatures by the supplementary fuel section. Temperatures of gas valve bodies must be within accepted limits under similar conditions. Likewise, tests have been specified to insure satisfactory performance of the oven burner when the top section of the range is heated by supplementary fuels. Such fuels may be either oil, anthracite coal, or bituminous coal.

### Australians Conduct Technical Study

A TWO-WEEK technical study of testing and research techniques at the American Gas Association Testing Laboratories has been completed by three Australian gas engineers.

In the United States for the purpose of surveying American methods and technical procedures, the visitors are all executives of the Australian Gas Light Company. They are W. J. D. Palmer, assistant research officer; F. S. P. Harper, assistant supervisor,



Australian engineers look over refrigeration unit at Laboratories. Left to right: F. S. P. Harper, G. A. Peterson, W. J. D. Palmer, and Milton Zare of the Laboratories staff

service division; and G. A. Peterson, industrial gas engineer.

During their stay here the men are visiting a number of leading utility companies and equipment manufacturers and consulting members of the Association's headquarters staff who have assisted them in arranging their itinerary. The Australian gas industry organized a testing laboratory in that country several years prior to the war, which was established on lines similar to our own.

The visit of the Australian engineers followed by a few weeks that of two members of the Soviet Purchasing Commission who were also greatly interested in the facilities and operations of the Laboratories. A similar visit by another group from the Soviet Union was made last year.

### Home Economists Inspect Laboratories

HOME service women of utility companies from many parts of the United States, as well as home economists in many other fields, including staff members of college faculties, visited the American Gas Association Testing Laboratories recently.

Over 100 delegates to the annual convention of the American Home Economics Association took advantage of the opportunity while in Cleveland of inspecting the Laboratories and becoming acquainted with their services and facilities. Delegates from as far as California, Nebraska, and Texas were among the visitors.

Sixteen home economists from the Ohio Fuel Gas Co. and four from the Cincinnati Gas and Electric Co. were among the many that visited informally during the convention. Forty-five additional members of the society attended an official tea and inspection tour sponsored jointly by the Laboratories and the American Stove Company.

Following a short opening address by the Director, visitors were divided into small groups for inspection of current testing and research activities. Anne McManus, home service director of the East Ohio Gas Co., presided at the tea while Joan Huck and Mrs. Winifred Anderson of the Laboratories' research staff were hostesses to the visitors.



Home Economics Association visitors on inspection tour of the Laboratories

# Associated Organization Activities

## Florida-Georgia Technical Session

A TECHNICAL session of the Gas Meters Association of Florida and Georgia, will be held at the Clearwater Beach Hotel, Clearwater, Florida, September 13-14, according to a recent announcement by J. W. Owen, secretary of the Association.

John Sholar, chairman of the Technical Section, is in charge of the program. A paper on a safety program for gas companies will be presented in connection with this meeting.

## Short Course on Gas Measuring



Joseph M. Lowe

SEVERAL hundred men interested in gas measurement work are expected to attend the short course on gas measuring and regulating equipment to be given by West Virginia University, Morgantown, W. Va., the three days of September 9, 10, and 11. The meeting will mark the sixth year the course has been

held and the first since the war caused its interruption several years ago.

Among the speakers will be Dr. Irvin S. Stewart, president, West Virginia University; J. French Robinson, president, The East Ohio Gas Company, and immediate past president of the American Gas Association; and the Honorable C. E. Nethkin, chairman, Public Service Commission of West Virginia.

Arrangements are under the direction of General Chairman Joseph M. Lowe, Hope Natural Gas Company, Clarksburg, W. Va. George W. Stuart, Equitable Gas Company, Pittsburgh, Pa., is serving as program chairman, and J. W. Allison, Monongahela Power Company, Morgantown, as exhibit chairman.

## Oklahoma Gas Meeting

C. B. DAY, chairman of the Gas Division of the Oklahoma Utilities Association, has announced that the annual fall meeting of the Gas Division will be held September 20, at the Biltmore Hotel, Oklahoma City.

## Pacific Coast Association Plans Convention

THE fifty-third annual Convention of the Pacific Coast Gas Association will be held at the Fairmont Hotel, San Francisco, Calif., September 10-12.

The program on the opening day will be devoted to the national situation. Leigh Whitelaw and Harold Massey will represent G.A.M.A., and R. H. Hargrove, first vice-president and presidential nominee of the A. G. A., will lead a group of speakers who will cover current A. G. A. activities including research and promotion.

H. Vinton Potter, director, New Freedom Gas Kitchen Program, will be a speaker at the Tuesday afternoon session, and on Wednesday morning September 11, the program will go into detail on domestic gas cooking promotion. Supplementing Mr. Potter's introduction, Servel, Inc., will present its New Freedom Gas Kitchen under the direction of R. J. Canniff, promotion manager of Servel.

Carl Sorby, vice-president, George D. Roper Corp., and chairman, "C.P." Range Manufacturer's Group, will present the latest news on "C.P." ranges, and will outline a powerful plan for the promotion of automatic gas cookery.

J. E. Drew, assistant director of promotion, American Gas Association, will give a presentation of the work going on to insure the future of the gas industry. Roy Dreiman, general convention chairman, has reserved all space on Wednesday and Thursday mornings for the popular broadcast "Breakfast on Nob Hill."

On Wednesday afternoon, R. R. Gros,

chairman of the Pacific Coast Gas Association's Advertising Committee, will introduce "The Miracle Flame," a new sound motion picture in color, being shown for the first time.

One of the greatest events in the recent history of the California gas business is the Texas pipeline. Its economic and technical features will be described in considerable detail in an illustrated talk by A. F. Bridge, vice-president and general manager of the Southern Counties Gas Company. The California natural gas story will be rounded out by Roy Wehe, assistant director of public utilities of the California Railroad Commission, who will discuss natural gas reserves.

A Home Service breakfast will also be held Wednesday morning, and a Home Service round-table discussion in the afternoon.

The Accounting Section will hear Alden C. Fensel, director of research of the California Taxpayers Association, discuss local tax trends, and in addition will hear other speakers on group insurance problems.

The Thursday morning session will be devoted to problems of the relations between employers and employees. Some of the basic principles of successful relations will be demonstrated by Judge Irvin Stalmaster, an industrial relations consultant.

On Thursday afternoon separate meetings will be held of the Accounting, Sales, and Technical Sections. At each of these meetings, the current work of the section will be reported and some of the newest practices of member-companies described.

## N. E. G. A. Home Service Development Conference Planned for Boston in October



Mrs. L. P. Dunbar

A TWO-DAY Home Service Development Conference will be held in Boston on October 24 and 25 by the Home Service Educational Committee, Home Service Group, Sales Division of The New England Gas Association.

Program planning has been under way for some weeks under the direction of Mrs. Lillian P. Dunbar of Cambridge, chairman of the committee, immediate past chairman of the group, and current A. G. A. Home Service Chairman. Susan A. Mack of Boston, Chairman of the N.E.G.A. Home Service Group, is cooperating with Mrs. Dunbar in developing the conference program.

The first session will feature "New View-

points" which will be the product of a group of home service representatives who have become associated with the gas industry during the past year and who are thus expected to emphasize an outside viewpoint. The effort will be made to introduce a fresh approach to customer relations. Among other items at this session will be one entitled "What Do We Lack That We Should Have?" Another feature will be a quiz contest to develop as many new ideas as possible.

The second of the four sessions will present youth classes, brides' classes, employees' classes, men's classes, planning modern kitchens for home-making instruction, and participation by home service representatives in the activities of service and professional groups in their community.

The third session will present the increasing consumer interest in home laundry mechanics and discussions on frozen foods, pressure saucepans, and other new developments of interest to home service representatives under the general theme of "New Revenue

Loads." There will also be an address on "Gas in the Modern Kitchen."

The fourth session will offer an address by a gas industry executive on "What Management Expects Of Home Service." There will also be several sales promotion presentations covering recent developments of interest in this field.

The following persons are scheduled to make brief opening remarks at the first session: President Knowlton and Executive Secretary Belden of the N.E.G.A., Home Service Counsellor McQueen of the A. G. A., Chairman Hiller of the N.E.G.A. Sales Division, Mrs. Dunbar and Miss Mack.

Acceptances have already been received from about two-thirds of the nearly 30 persons who will participate in the conference.

Norman Millard, superintendent, Domestic Sales Division, Boston Consolidated Gas Company, will be the chairman of the committee handling various exhibits in the company's auditorium where the conference will be held.

## Head G. A. M. A. Groups

**LOYD C. GINN**, sales promotion manager, American Stove Co., was elected chairman of the Domestic Range Division of the Gas Appliance Manufacturers Association and E. Carl Sorby, vice-president, Geo. D. Roper Corp., was re-elected chairman of the "CP" Group at a meeting of the group held in Chicago.

R. S. Agee, vice-president, Roberts & Mander Corp., was elected vice-chairman of the Range Division and A. B. Ritzenhaller, vice-president, The Tappan Stove Co., was elected vice-chairman of the "CP" Manufacturers Group.

## Midwest Gas School

**R. B. SEARING**, secretary-treasurer of the Midwest Gas Association, has announced that the twenty-fourth Gas School and Conference conducted by the Association, and the Engineering Extension Service of Iowa State College will be held October 28-30 this year.

# Obituary

**WILLIAM M. WALSH**, merchandising manager for The Connecticut Light and Power Co., Waterbury, Conn., died July 24, in Waterbury. He was 57 years old.

Prior to going to Waterbury in 1924 Mr. Walsh was sales manager for 14 years of the Adirondack Power and Light Co. in Schenectady, N. Y. As merchandising manager for The Connecticut Light and Power Co., Mr. Walsh took a prominent part in the sales activities of the American Gas Association, Edison Electric Institute and the New England Gas Association.



Frank W. Smith

served at various times as president of The New York Edison, The United Electric Light and Power, Brooklyn Edison, New York and Queens Electric Light and Power and the Consolidated Edison Companies. When he retired in 1937 he had been active in the electric industry for fifty-seven years, his first job in 1880 having been that of office boy with the United States Illuminating Company, one of the earliest arc lighting organizations, which eventually became part of The United Electric Light and Power Company.

Mr. Smith served for many years as a director of the various companies now comprising the Consolidated Edison System: Brooklyn Edison, New York and Queens Electric Light and Power, Westchester Lighting, Yonkers Electric Light and Power, Consolidated Telegraph and Electrical Subway Companies and the New York Steam and Tarrytown Terminal Corporations.

**FREDERICK G. ROBERTS, JR.**, a member of the new business department of The Brooklyn Union Gas Co., and widely known in the gas industry, died suddenly on July 10, during the course of a golf match. He was 42 years old.

Mr. Roberts was born in West Roxbury, Mass., but most of his business career was spent in Brooklyn. He started with Brooklyn Union in 1928 as a refrigeration salesman, later becoming a district representative and in January, 1933, plan captain of the new business department. Mr. Roberts was prominent in organizing and directing employee sales and educational training. He was a member of the American Gas Association.

**HARRY J. BURTON**, general safety supervisor of Consumers Power Company and a pioneer in public utility safety work, died July 26 in Foote Hospital, Jackson, Mich., after a brief illness. His age was 64.

Mr. Burton was born in Egremont, near Liverpool, England, and reared in London. He came to the United States in 1900, and after working as an electric plant operator in Philadelphia and in Bridgeton, N. J., he joined the General Electric Company in Schenectady, N. Y., where he received special training in operating, dispatching and engineering work.

In 1912 he went to Jackson to work out a system of dispatching for the old Au Sable Electric Co., which later became a part of Consumers Power Company. Later he organized the Personnel and Instruction Depart-

**FRANK W. SMITH**, president of Consolidated Edison Company of New York, Inc., until his retirement from that post in 1937, died July 22 at his home in New York, following a lingering illness. He was 79 years old.

A trustee of Consolidated Edison Company from 1932 to 1945, Mr. Smith

ment for Consumers and he remained at the head of this department until the rapid growth of the company made necessary the organization of the General Safety Department, when he was named general safety supervisor. In scope and accomplishments, the Consumers safety organization holds high rank among utility companies.

His efforts contributed to the widespread adoption of the prone pressure system of resuscitation and many other modern safety practices. At his death he was a member of the accident prevention committees of the Edison Electric Institute and the American Gas Association and a member of the Executive Committee of the Public Utilities Section of the National Safety Council. He was also a member of the American Institute of Electrical Engineers.

**JOHN H. DOERRES**, chief engineer of the Laclede Gas Light Co., St. Louis, died of a heart attack on July 2. Mr. Doerres was appointed chief engineer of the gas company in September, 1945, after serving as superintendent of the by-product coke oven plant of the company. He was a graduate of Ohio State University and a member of the American Gas Association. First employed by Laclede in March, 1913, he helped with the design and construction of the coke oven plant, which was completed in 1915.

**JEREMIAH F. HEALEY**, manager of the hotel and restaurant department, Springfield (Mass.) Gas Light Company died during the first week in July. He was 71 years old.

He was with the gas company for 38 years. Starting in 1908 as a helper on a pipe fitting wagon, he worked his way up as a salesman of commercial cooking equipment to head of the department in which capacity he served until the time of his death.

Jerry, as he was generally called by his host of friends and associates, was known throughout the gas industry from coast to coast, and he was sure to be found at any national exposition featuring commercial cooking equipment. He was active in the affairs of the American Gas Association where he served as a member of the Food Service Equipment Committee for a great many years. He never relinquished his interest in the restaurant business, and his work in the promotion of sale of gas equipment to hotels and restaurants proved deep knowledge and interest in that field.

## Propane-Air Plant For Cincinnati Gas

**A**WARD of a contract from the Cincinnati Gas and Electric Co., to handle the erection of what will be the fourth largest propane-air plant in the gas utility industry was announced by E. A. Flascher, general manager of Stacey-Dresser Engineering, a division of Stacey Bros. Gas Construction Company.

Other similar plants now in the process of erection include Columbus, Detroit, Toledo, Boston and Binghamton, New York.



# Personal and Otherwise

## Manager of New Bryant Plant



Gordon Rieley

**L**YLE C. HARVEY, president of The Bryant Heater Company, Cleveland, has announced the appointment of Gordon Rieley, vice-president of the company, as general manager of the new Bryant plant now being completed in Tyler, Texas. Mr. Rieley, until recently on leave of absence while serving as divisional director of the New Building Section of the Office of Price Administration, assumed his new duties July 25.

Production in the new Bryant Texas plant, for which ground was broken in October, 1945, will begin in August, with gas-fired water heaters scheduled as the initial item of production. Manufacture of space heaters and other gas appliances will follow to complete the line of products assigned to the new plant, which contains 105,000 square feet of floor space.

Mr. Rieley has been associated with Bryant for the past twelve years, where he has specialized in market research and analytical phases of Bryant sales and production. He is chairman of the house heating division of the Gas Appliance Manufacturers Association, as well as being active in several housing and construction committees of the Cleveland Chamber of Commerce.

## Nodder, Delafield To Aid President

**C**HARLES NODDER and Charles B. Delafield have been appointed assistants to President Ralph H. Tapscott of Consolidated Edison Co. of New York, Inc. Formerly executive assistant to Vice-President F. H. Nickerson, who retired in the fall of 1944, and also an assistant secretary of the company, Mr. Nodder will continue to serve in the latter capacity. Mr. Delafield joined the company in July; he had been a vice-president of the Illinois Power Company.

Mr. Nodder was born in Sheffield, England,

in 1893. A specialist in accounting, commercial law, economics and related subjects, he has been a special accountant for the Philadelphia and Reading Railroad Company; senior auditor for the Income Tax Unit of the Bureau of Internal Revenue; chief auditor of the Public Service Commission of Maryland; and supervising accountant-examiner for the Federal Trade Commission. He joined the Consolidated Edison System in 1934 as special accountant to Vice-President Nickerson who was responsible for regulatory, statistical, tax and related matters.

Mr. Delafield was born in New York City in 1905. After leaving Harvard University he became associated with Coffin and Burr, investment bankers in Boston, and was later assigned to their New York office. In 1935 he became associated with Kidder, Peabody and Company in New York. In both organizations he handled matters of financing. In 1942 he joined the Illinois Power Company as assistant to the president and later became a vice-president.

## Joins A. G. A. Publicity Bureau



Alice M. Janota

**A**LICE M. JANOTA has joined the Publicity Bureau of the American Gas Association as an assistant director in charge of domestic gas publicity. In her new capacity, Miss Janota will direct publicity and services covering the domestic use of gas in homes for national magazines, women's pages of newspapers and women's programs in radio.

Graduated from Pennsylvania State College in 1941 with a degree of B.S. in Home Economics, Miss Janota was assistant to the dietitian of the Navy Cafeteria in Washington, D. C., and editorial assistant of Food Industries Magazine. Previous to joining the American Gas Association, she served as assistant food editor of the Fawcett Women's Group, Fawcett Publications.

Miss Janota is a member of the American Home Economics Association and Home Economics In Business.

## Named Directors of Columbia Gas

**H**EDWIN OLSON and George S. Young, directors of The Manufacturers Light & Heat Co., have been elected to the board of directors of Columbia Gas & Electric Corp.

Mr. Olson became affiliated with Columbia in 1928 and subsequently served as assistant treasurer and treasurer before he was named financial vice-president in 1941. He is also a director of Columbia Engineering Corp., the Ohio Fuel Gas Co., Columbus, and of the United Fuel Gas Co., Charleston.

Mr. Young, a native of Butler, is a graduate of the United States Naval Academy and Columbia University. He served with the Navy in both wars. Joining the Columbia organization as a junior engineer in 1930, Mr. Young became vice-president and general manager in 1936 of the one time subsidiary, Michigan Gas Transmission Corp. In 1942 he was elevated to the engineering corporation's vice-presidency. Mr. Young is also a director of the other natural gas companies in the Pittsburgh Group of the Columbia Gas System which serves more than 1,275,000 customers with natural gas.

## Home Service Director At Indianapolis



Mary Alice Crosson

**M**ARY ALICE CROSSON has been employed as home service director of the Citizens Gas and Coke Utility, Indianapolis, Indiana. A graduate of Purdue University, she has been household editor of the *Indianapolis Star*, writing a daily column under the name of Patricia Cook and conducting cooking schools in sixteen neighborhood theatres in Indianapolis.

For a while she served as home service director for the Memphis Power and Light Company, Memphis, Tennessee. Later she accepted a position as home service director of the West Texas Gas Company, Lubbock, Texas, touring forty-four cities and towns on the South Plains of West Texas.

Miss Crosson was active in the Red Cross chapter of Lubbock County, Texas, being nutrition chairman, and was also homemaking consultant for the Girl Scouts and a member of the Girl Scout Council. She was a member of the Lubbock chapter of the American Association of University Women, Lubbock chapter of Altrusa Club, Dietetics Association and Lubbock County War Food Committee.

## Nicholson Gets Hollywood Assignment

**H**D. "PAT" NICHOLSON has been appointed the new representative of the American Gas Association to the motion picture and radio industries in Hollywood, it was announced last month. He will continue the work developed and maintained by "Deke" Houlgate in this special contact activity.

Mr. Nicholson was with the training staff of the Sales Department of the Southern California Gas Company prior to the war. After forty-seven months service with the Navy, during which he served as executive officer in a Navy V-12 college, and in the Civil Readjustment office of a Naval Officers Separation Center, he returned to his duties in the gas company.



## Jones Joins A. G. A.



Robert I. Jones

In 1932, he entered the employ of Dun & Bradstreet, Inc., where he remained for the past fourteen years. During this period he was, successively, reporter, supervisor of reporters, and latterly as an administrative assistant in the supervising of reporting.

## Henry A. Doering Retires

NEARLY forty members of the official family of the Westchester and Yonkers companies of the Consolidated Edison System recently honored Vice-President Henry A. Doering at a luncheon at the Leewood Golf Club. On July 24 Mr. Doering observed his forty-seventh anniversary of service with

the companies and he retired on August 10.

Edward P. Prezzano, president, Westchester Lighting Co., presented a memento of the occasion to Mr. Doering and, with other company officials, paid tribute to his long and faithful service.

Mr. Doering's first post back in '99 was with the old New York Suburban Gas Company, which was merged with several other small utility companies the following year to form Westchester Lighting Company. By 1902, having progressed through various stages as indexer, collector, order clerk, book-keeper and salesman, Mr. Doering had become superintendent of the New Rochelle District; the youngest superintendent in the then U. G. I. System. He had supervision of the commercial department as well as construction and maintenance work of his district. In those days the superintendent made his own surveys and cost requisitions for gas mains and electric line extensions for new customers.

These varied experiences in the field qualified Mr. Doering to assume further responsibilities. In 1920, he was appointed assistant secretary, a position which he held until his promotion to the office of secretary of the company in 1926. He was made vice-president of Westchester Lighting in 1929, and a director in 1940. In 1941, he became vice-president and a director of the Yonkers company.

## Smith Moves Up



Herbert J. Smith

HERBERT J. SMITH has been appointed superintendent, Telephone Department, Equitable Gas Co., Pittsburgh, Pa., D. P. Hartson, vice-president and general manager of the company, has announced. Mr. Smith succeeds V. H. Drake, who retired from active service on July 1.

Mr. Smith entered the employ of the Equitable Gas Co., in 1924, as a draftsman. Since then he has been cadet engineer, designer, construction supervisor, construction engineer, and assistant superintendent of telephones. He has a bachelor of science degree in general engineering from the University of Pittsburgh.

## Floyd C. Brown President

FLOYD C. BROWN, vice-president and general manager of Natural Gas Pipeline Company of America since its organization, has been elected president, succeeding W. Alton Jones, who will serve as chairman of the board. Mr. Brown, according to the company's recent announcement, will continue his duties as general manager. He has also been elected president of the Texoma Natural Gas Company and the Quadrangle Gas Company.

A graduate of Leland Stanford University, Mr. Brown joined the Empire Companies organization in 1917 and advanced rapidly through posts of engineering responsibility to become manager of the Empire Pipeline Company and chief engineer of Empire Companies in 1921. In 1923 he became assistant general manager of the Empire Companies, and in 1926 was elected vice-president.

Mr. Brown is a director of the American Gas Association.

## Four Promotions at Ohio Fuel Gas



S. A. Chadwell



Vance O. Cox



David R. Edwards



Howard Leckrone

SAMUEL A. CHADWELL, superintendent, gas control department, The Ohio Fuel Gas Co., has been promoted to Columbia System dispatcher for Columbia Engineering Corp., with headquarters in Charleston, W. Va., it was announced by E. M. Tharp, vice-president and general manager of Ohio Fuel. Vance O. Cox, chief dispatcher for Ohio Fuel, has been named Mr. Chadwell's successor.

Mr. Chadwell's association with The Ohio Fuel Gas Co. and its predecessors dates back to 1912. He became superintendent of main lines before being named head of the gas control department in 1933. Mr. Cox began work with the company in 1915 and became chief dispatcher in 1933.

The advancement of David R. Edwards, employee relations manager of Ohio Fuel, to a similar position in charge of employee rela-

tions for the entire system of Columbia Gas & Electric Corp. has also been announced. Howard Leckrone, who has been assistant personnel manager of Ohio Fuel, has been named to succeed Mr. Edwards.

Mr. Edwards started work with Ohio Fuel in 1926 in the industrial department, served in the distribution and service departments, and was general service manager before he was appointed employee relations manager in 1943.

Mr. Leckrone has been associated with the company since 1920, in the transmission, auditing, and distribution departments. He served three years in the Navy in World War I and was in the Coast Guard in World War II. He was local manager at Chillicothe before entering the last war, being transferred to the personnel department upon his discharge from service.

## Lone Star Gas Men Advanced

APPOINTMENT of Frank Pope as manager of Lone Star Gas Company's district office at Vernon, Texas, and William P. Stone as industrial engineer of the Dallas Division, has been announced. Mr. Pope was transferred to Vernon from the company's Dallas Division. He has been with Lone Star since 1928, going to Dallas from Decatur, Illinois, where he was in business.

Mr. Stone, who left the Army in March as a Lieutenant Colonel, returned to Lone Star on March 15, in the company's general division. He succeeds L. G. Waskom, who is in ill health, and who has directed the Dallas department for many years. A graduate of Annapolis, Mr. Stone began working for the company in 1927.

## Three New Home Service Directors

**W**L. HUTCHESON, sales manager of The Manufacturers Light & Heat Co., Pittsburgh, Pa., has announced that three



Evelyn M. Porter



Helen Wilcox

new home service directors are now on the staff of the natural gas company and its affiliated companies.



Wanda M. Ewing

Wanda M. Ewing is the new home service director in Wheeling, for the Natural Gas Co. of W. Va. Evelyn M. Porter is the home service director for Manufacturers' in the Uniontown, Pa., area. Helen Wilcox has been appointed home service director in Binghamton, N. Y., for Binghamton Gas

Works.

Miss Ewing has been teaching home economics for several years in Pennsylvania and West Virginia Schools. Miss Porter was formerly a dietitian in the Chambersburg, Pa., hospital. Miss Wilcox has been assistant home service director in Binghamton.

The three new home service directors are reporting to Flora G. Dowler, home service supervisor of the affiliated natural gas companies.

## D. D. Williams Joins Smith Corp.



Donald D. Williams

**D**ONALD D. WILLIAMS, of Lincoln, Nebraska, has joined the water heater sales division of the A. O. Smith Corp., and will give technical assistance in the sale of both domestic and commercial water heaters under the direction of James F. Donnelly, product supervisor.

Mr. Williams is an engineering graduate of the University of Nebraska. He did sales engineering work

from 1923 to 1943 for the Iowa-Nebraska Light and Power Co., and for a part of that time was in charge of industrial gas sales and installations for that utility.

In 1943, he went to the seventh service command of the army as a civilian mechanical engineer on heating and volume water heaters. He left that post for his present position on June 1.

Mr. Williams is a member of the American Society of Heating & Ventilating Engineers.

## L. G. Greer Retires

**L**G. GREER, who has built gas plants and pipe lines for nearly a third of a century in many parts of the United States, has been retired with life income by United Gas Corporation after long service with that firm, J. V. Strange, vice-president and general manager announced recently.

For many years Mr. Greer was maintenance superintendent in charge of United Gas properties in Texas, Louisiana and Mississippi. His present position is construction superintendent. He is being retired upon reaching the age of 65, in accordance with the company's recently adopted retirement plan.

He is the second United Gas official in Houston to be retired this year. K. L. Simons, manager of the Houston division, retired in January, after 44 years in the gas industry.

Mr. Greer began his career in the gas industry in 1916, working for the Atlanta Gas Light Co. and the El Paso Gas Co. in the days when they manufactured cooking and lighting gas from coal. When distribution of natural gas began, he superintended building of pipelines throughout the Southwest.

He went to work for United Gas in Lake Charles in 1931 and was transferred to the Houston general office a year later as distribution inspector. He was promoted to maintenance superintendent in January, 1938, and to construction superintendent in December, 1945.

## Laclede Promotions

**C**E. SCHOENE, formerly superintendent of distribution, has been promoted to chief engineer of the Laclede Gas Light Co. according to an announcement by Alfred Hirsh, vice-president of the company. Mr. Schoene succeeds the late John H. Doerres. He is a graduate of the University of Kentucky, and joined Laclede in May 1913 to work on plant engineering and design.

Other promotions at the Laclede organization were announced as follows: C. H. Wiley, superintendent, distribution; H. M. Gerken, superintendent, customers' installation department; J. D. Sowash, assistant superintendent, customers' installation department; P. J. Hennelly, superintendent, street department; F. A. Horr, superintendent, water gas manufacture; Dave Turk, superintendent, holder stations; G. Louis Marting, superintendent, stores; and E. B. Heath, special assistant to superintendent, distribution.

## Helen Kirtland Succeeds Mrs. Wells



Mrs. Hulda U. Wells

Miss Kirtland, a graduate of the University of Buffalo, has been in home service work for 18 years in New York and New Jersey. Before going with the New Jersey Power & Light Co. in 1944 she had been home service director of the Republic Light, Heat & Power Co. in Buffalo for five years.



Helen Kirtland

She is home economist for the Columbus, Ohio, *Dispatch*, supplying the newspaper with daily recipes and a weekly menu and serving as consultant.

A member of the American Gas Association's Home Service Committee for the past ten years, Mrs. Wells served as chairman in 1932. She played a large part in the preparation of the A. G. A. booklets, "Home Calls" (two editions), and the recently published "Home Service—A Career" and "Home Service—The Road to Opportunity."

## Gilmore Named Chief Engineer of Meter Co.

**E**R. GILMORE, who has been chief engineer of Emco products, has been appointed chief engineer of the Pittsburgh Equitable Meter Division of Rockwell Manufacturing Company.

Mr. Gilmore will be in charge of engineering and development of the meters and regulators built by the division for the control of gas, gasoline and oil.

He was graduated from Rensselaer Polytechnic Institute in 1920, and since that time has been engaged in work in the field of measurement and control. He joined the Pittsburgh Equitable Meter Company in 1936 and has guided the engineering and development of many new products, among them the new Rockwell-Emco Domestic Gas Meter.

## Cribben and Sexton Advances Jalass



Harold E. Jalass

**H**AROLD E. JALASS has been appointed assistant general sales manager of Cribben and Sexton Company, it has been announced by John E. Bogan, vice-president in charge of sales.

This move is one of a series of Cribben's expanded sales program in accordance with enlarged postwar production facilities.

Mr. Jalass went to Cribben and Sexton Company in 1917. In 1922 he joined the sales department covering Chicago and supplementing other territories throughout the country. For the past fifteen years he has been district manager for Universal gas ranges in Metropolitan Chicago area. He will continue in this capacity, in addition to his new duties.

## Swedish Group Honors

### A. G. A. President

**E**VERETT J. BOOTHBY, vice-president and general manager of the Washington Gas Light Co., Washington, D. C., and president of the American Gas Association, has been made an honorary member of the Swedish Gas Association, Svenska Gasverksforeningen.

C. W. Pilo, president of Svenska Gasverksforeningen, Stockholm, in a letter dated June 26, informed the American Gas Association of the honor bestowed upon its president.

## Evans Commercial Sales Supervisor

**T**HOMAS H. EVANS has been appointed a supervisor in the Commercial Heating Sales Section of the Equitable Gas Company, Pittsburgh, Pa. Mr. Evans will supervise commercial heating salesmen covering half of the territory served by the Company.

A veteran of three and one-half years with the Army, Mr. Evans served as a captain in the 96th Division, and led a rifle company in the Leyte and Okinawa campaigns. He entered the employ of the Equitable Gas Company in 1937.

## New Retail Sales Manager

**J**OHAN J. DALY, sales promotion manager, Connecticut Light and Power Co., has been named retail sales manager it is announced by A. V. S. Lindsley, vice-president in charge of sales.

Former commercial manager of the company's southern division and a Major in the

Army Air Forces during the War, Mr. Daly will be responsible for the staff planning phase in the full development of the company's retail markets.

Mr. Daly's assistant will be Charles A. Bryon, newly appointed appliances manager in charge of appliance sales and preparation of sales plans.

## Wins McCarter Medal

**C**HARLES CALLAHAN, of The Bridgeport Gas Light Company, Bridgeport, Conn., has been awarded the McCarter Certificate and Medal for saving the life of a man by application of the Schafer prone pressure method of resuscitation.

On June 28, George S. Hawley, president of the company and past president of the American Gas Association made the presentation to Mr. Callahan before a meeting of department heads and supervisors.

## Named District Manager

**G**ORDON D. BOYLE, sales representative for the Tappan Stove Co., has been named a district manager for the firm, according to an announcement made by A. B. Ritzenthaler, vice-president in charge of sales.

Mr. Boyle, who has been with Tappan Stove since 1935, will be in charge of Kentucky, Tennessee, Southern West Virginia, and Southwestern Kentucky.

## Robertshaw Story

**A**N attractive 4-color illustrated booklet, "Precision in Volume," telling the story of the company's part in the war, has just been published by the Robertshaw Thermostat Company, Youngwood, Pa. This company designed, engineered and produced a large volume of precision instruments, assemblies, and other war-production items. In peacetime it produces thermostats for gas and other equipment.

## A. G. A. Holds Outing

**O**N July 10, the entire headquarters personnel of the American Gas Association held their first annual outing at Hecksher State Park, Long Island.

After arrival at the park, and following a basket luncheon, various games were played. The opening feature was a soft-ball game, in which most of the members participated. This was followed by three races, for which the winners were awarded prizes. Winners of the egg race were Doris Flynn and A. Gordon King; the three-legged race, Mrs. B. Meyer and James M. Beall; and the potato race, Mrs. B. Meyer and Ainslie Walter. The rest of the afternoon was spent swimming in the Great South Bay.

The committee in charge of arrangements for the picnic consisted of Carmine Veltri, Frank W. Williams, Mrs. Helen Bayles and Lillian Betlinski.



Nearly everyone participated in the soft-ball game at the A. G. A. picnic



Luncheon at the many tables under the trees was a popular event



## GOOD INDUSTRIAL RELATIONS

(Continued from page 388)

can. Another way is to put them in classes and have them study matters of general information. Still a third is through the medium of having them meet as a group in conferences, having them think out together some of their problems. While certain of these devices are of some benefit, they are but a step along the way, and are totally inadequate to accomplish the real purpose.

One major weakness of all these training procedures is the fact that the superintendents and higher ranking supervisors are left out of the picture, or are either unsympathetic or uninformed as to what their supervisors are trying to do, or what is being tried for them. Another weakness is that supervisors are usually among the last to be informed of the various policies, and changes in policies of the company. They frequently receive their first information on such matters from the union stewards or agents. Their own problems are sometimes unknown or ignored, and gradually there comes upon them the feeling that they are not of management, but separate and apart from it. They reach the point where they discredit the idea that they represent management to their workers. At this point they are ripe for organization into a Foremen's Union.

The thing that is lacking is real leadership. The supervisors cannot give it to their workers if they do not receive it from their own supervisors. There is required in well-managed industries a downward flow throughout all organization levels consisting of authority stemming from a combination of responsibility for administration of established policy, and from the exercise of judgment and leadership in the existing situation. And there is required an upward flow consisting of those questions, facts, and opinions arising out of actual experiences, and permitted to exert proper pressure on policy formation. If there are bottlenecks in this two-way flow they seldom will occur solely between the first-line supervisors and their workers. So, if we expect our supervisors to apply the principles of the foundations for good industrial relations we must apply these same principles in the relations between higher

representatives and those supervisors. The whole spirit and method of management to be practiced by the supervisor must initiate with the president of the company.

### Right Executive Leadership

We return, therefore, to the realization that interpretation and administration of company policies with respect to industrial relations is no different from the way policies are made effective with respect to all other phases of the business. The problem is not one of working with the supervisors alone, but of finding some method by which unity of understanding, up and down, through all levels of supervision from president to gang-boss, may be achieved. This is the problem of management, not only in matters of employer-employee relations, but in matters of cost, quality, and customer service. It is the problem of leadership. Just as we decided we could not indict a worker, but must indict the leadership offered him; so we cannot indict the supervisor, but must indict the superintendent, general manager, and so on up the line if proper leadership is lacking.

Therefore, if we get our thinking straight to the point where we actually want to do something about this matter of good management, and not merely talk about it, those in executive and leadership positions must accept the strong obligations which are inherent in these positions. This means we are obligated to take the initiative, and to start practicing what we preach on our own jobs. This is the most far-reaching training job we can ever perform. Everyone looks to his boss for guidance. On any other basis, all talk about good industrial relations is just that—talk. Unless supervisors receive from their superintendents the same spirit and method of management they are expected to pursue with their workers, they will do the jobs with their tongues in their cheeks.

May I digress for a moment to illustrate something about this being called leadership.

During the German break-through in the Ardennes, an inexperienced American Infantry Division suddenly found itself separated from friendly troops on its one flank, and with overwhelming enemy forces on its front

flank, and cutting across its rear. The leadership was not equal to the crises involved, and the enlisted men, seeing their officers start to take off across the hills followed their example, throwing away weapons and equipment in their effort to escape. They poured into the Infantry Division on their left. This was a veteran division. The epidemic of panic did *not* take effect. The men of this Division, instead of taking flight, became angry, and set up defense lines in every possible position and manner. The effect on the broken division was amazing. The leaders continued on their way to the rear. The men stood with the veteran division and fought. For four days their combined efforts held up the advance of the infuriated Wehrmacht until sufficient reserves were brought into position. Then the divisions withdrew in complete order to a stable line of resistance. There was one notable exception within that first-mentioned division. On the second day of the enemy's offensive, one battalion that had been cut off, fought its way back through the enemy lines, having preserved the majority of the battalion with their weapons and equipment intact, and carrying all their wounded. The men of that battalion had been offered the same effective leadership that was offered by the officers and non-commissioned officers of the entire veteran division. The response by the enlisted men of those units was everything that good leadership deserves.

In conclusion, therefore, the answer to industrial relations problems is the answer to all other problems of business—good leadership. Problems of labor relations are not automatically solved by the signing of labor agreements. Consistent practices and good management from the top down, through every level of supervision, is the only sure and permanent answer. The obligation upon those in top leadership positions, first, to determine right policies, then to administer them in the way that builds understanding and releases initiative and creative effort, is a *tremendous* one. It is the greatest and most intriguing challenge in life. As we rise to meet it I believe we may achieve standards of accomplishment hitherto considered unattainable.



## NATURAL GAS HOME STUDY COURSE

(Continued from page 378)

was prepared Report Number Two of the Gas Measurement Committee was not available. Since use of the material in this report permitted somewhat greater accuracy and a somewhat wider range of conditions in the use of the orifice meter, it was important, and it was discussed in a supplement.

Another supplement dealt with dehydration. When the work was begun, trouble from the formation of hydrates was just beginning to be recognized, but only a very little was known about them. This supplement discusses the nature of hydrates and the methods of preventing their formation. In addition to the discussion an extensive bibliography was given. Also a bibliography was given in a supplement on electrical protection of pipelines.

Up to the present time eleven such supplements have been issued. Two more are being prepared, one on underground storage and the other on the pipeline formulas. These supplements are sent to all students who have completed the course, as well as to those who are currently working on it.

The course is not advertised commercially. One reason for this is that the American Gas Association has done all that it could to bring it to the attention of the men who ought to be interested in it, and another is that it is not a profit-making activity of the University. Probably another reason has been our reluctance to accept students who would not have the ability to complete the work or the persistence and the interest in it which would warrant their undertaking it. Some companies have advised selected men to enroll and some have helped their men financially. In many instances students have advised their friends to enroll. A little while ago, one of the students wrote: "Since I have been taking the Natural Gas Course with your school, several of the fellows here in the field have become interested in same. At present there is only one that I am sure would be a credit to you and also would follow through with the whole course."

Many companies help their employees to pay the cost of the course but recently one company advised the university of an interesting plan which gives employees a substantial bonus for good work.

The letter from this company describes the plan as follows: "Our company, as an incentive for its employees to learn about natural gas, refunds a percentage of the cost of the course, the percentage depending upon the average marks made by the student. Over 94% the company refunds 125% of the cost of the course, between 87% and 94% they refund 100%, and so down the scale until 75% is reached, where the student must pay the entire cost of the course himself."

The record of enrollments has not followed the pattern which was expected. It was assumed that there would be a large enrollment after the course was first offered and that the number would then taper off to almost nothing. This has not happened, for the immediate enrollment was not as large as was expected and the number has never tapered off. In fact, at the present time instead of being almost nothing it is increasing.

## A STAGE THAT COMMANDS

(Continued from page 382)

ary 4, the opening date, approximately 2500 people have attended various activities in this auditorium. The groups have included Parent-Teacher Associations, church and fraternal organizations, mothers' clubs, sports clubs, business girls' groups, Scouts, and food and gas appliance dealers' groups. Cooking demonstrations by the Home Service Department are given to the majority of these groups. Some groups prefer to conduct their own meetings. In these instances, a representative of The East Ohio Gas Company gives a ten-minute talk about gas appliances. This auditorium is available six days a week for morning, afternoon, or evening use to groups of 25 or more.

Adjacent to the auditorium is a room of similar size which is designed to be used for cooking and baking classes, where the students actually do the work. This large room has a modern gas kitchen, seven gas ranges, and a custom-built table used as an instruction and work table. The table is U-shaped. The two long sides furnish work space for seven people to a side and the closed end gives sufficient demonstrating space for the instructor. One of the features of this unit is a shelf, built beneath the work surface, which provides storage for personal articles of the attendants.

The inside of this U-shaped table contains base cabinets equipped with sliding doors and provides the necessary storage space for the class utensils. The table itself is made of plywood with work top of black linoleum. The one-wall kitchen has an extra large stainless steel sink and work space, along with a modern 6-burner gas range and gas refrigerator. In addition, for use in the class work, seven gas ranges of various makes are installed. This gives the class an opportunity not only to see but to actually use the modern gas range. The walls of this room are painted a two-tone dusty pink. This unusual pink shade against the gleaming white equipment, plus blue accents in the model kitchen give charm to the room.

For the past four years, a bread-baking program has been conducted in cooperation with a local flour mill. The flour company employs two home economists to conduct these classes. They provide all materials needed for the baking classes.

Classes are limited to fourteen persons each day and start promptly at 9 A.M. The complete bread and roll lesson is given. Each person receives ingredients for one loaf of bread and a pan of rolls. Complete instructions are given by the home economist before actual lessons are begun. The work is closely supervised during the entire operation. Inasmuch as this lesson is not completed before 2 P.M., the flour company furnishes a luncheon to the group. Each person is permitted to take home the finished baked products at the end of the class period.

The original plan of two classes a week was not sufficient to take care of the requests to attend and in less than a month, these were increased to four days each week. The classes are discontinued during July and August. A registration book begun November, 1942, and checked for attendance on May 31, 1946, shows that 6657 people have attended this school. The classes have been composed of all races and creeds, the oldest registrant was 85 years old and the youngest, 10 years of age. Included were illiterates and some possessors of Ph.D. degrees. At the present time the baking school is booked solid to September, 1947, more than one year ahead. This is proof positive of the popularity of this type of a program.

## COST COMPARISONS

(Continued from page 395)

meters increase the work of meter readers and customers' accounting personnel in controlling the accuracy of meters.

As to *Sales Promotion Expenses*, which are largely controllable by management and hence are determined largely by management's policy, there are several factors which should be considered. One is whether the company does or does not engage in merchandising of appliances. If the territory is highly industrial rather than preponderantly domestic and commercial, the costs of load building are apt to be lower. Promotional costs to reach the domestic and commercial customers are probably proportionately higher than the cost of promoting the sale of electricity and gas for industrial uses. The degree of the dependence on institutional advertising as contrasted with direct advertising of appliances or services will also be a factor and result in a shifting of costs to sales promotion advertising from merchandise jobbing and contract work.

In comparing *Administrative and General Expenses* the most important items are officers' salaries, pensions and other employee benefits, and other general office salaries and expenses. Here, the question to be raised is: Are the levels of these costs (i.e., salaries and wages, and pension benefits) low, average, or high? As to pensions, the question should be asked whether the plan is a funded one or do the expenses include only payments currently being made to pensioned employees, and if the plan is a funded one how is the cost of "past service" pensions being amortized—over a long, medium or short period?

Insurance is another cost as to which company practices may differ, in that one company may be self-insured as to its fire and other risks, including injuries to employees and damages to property of others, another company may be self-insured as to only a part of these risks, while still another may be protected against these risks wholly through the usual insurance channels. This group of expenses for one company may be higher than those of another because of the management's policy (previously referred to) not to capitalize administrative and general expenses, or to capitalize only a part of these expenses.

### 8. Problems of Combination Companies

The remaining factor to be considered as affecting an individual company's costs has to do with the problem of comparing the costs of a combination company. In comparing the costs of one division of such a company, such as the electric division, with the costs of another combination company or of a strictly electric company, an additional factor must be recognized; namely, the allocation of costs among the departments or divisions of the combination company or companies. This affects chiefly sales promotion expenses, customers' accounting and collection expenses and administrative and general expenses, although, of course, distribution expenses could also be affected. The problems which may be met are ably set forth in two papers presented

by P. R. Williams and H. C. Davidson at the Accounting Conference of the E. E. I. held in Detroit in November 1937.

One might conclude from the foregoing that your subcommittee feels that it would be well to eliminate cost comparisons entirely.



### SERVICES OFFERED

**Expert Store and Heating Salesman**—Services now available. Years of experience contacting wholesale and retail trade and utilities in all eastern and southern territories. Capable of serving as Sales Manager—Specialty Man—Conducting Promotion Campaigns—Directing Distributors and Agencies selling forces. 1522.

**Manufacturer's Representative**—located New York metropolitan area, desires several non-competing industrial gas equipment items. Excellent nationwide contacts with the Can manufacturers, Baking and other industries. Broad experience gas combustion. Licensed Professional Engineer. Sales Commission Basis. 1523.

**Single woman (24)**, four years intensive Distribution training and experience. Duties: Office Supervision and Field Work consisting of vegetation and leak surveys and mapping of old and new construction. Proficient in use of combustible gas indicators and electronic pipe locators. Experienced in customer and employee relations. 1524.

**Man with twenty-three years experience** with two large Eastern gas companies in Fitting Dept., Appliance Testing Laboratory, Manager Industrial Fuel Dept., and Superintendent of Distribution. Combustion and Mechanical Engineer with nationwide manufacturing company over three years. 1525.

**Chemical Engineer**, B.S. Illinois Tech 1944, one and a half years experience in research and development on high temperature furnaces, preparation of super-refractories and oxyhydrocarbon flames. Desires responsible position in production or development. Available immediately. (23), single. 1526.

**Engineer**—Nine years experience in Manufactured Gas Engineering, Production, Distribution and Service desires position with progressive utility. Former Lieutenant U.S.N.R. Licensed Professional Engineer. Member A. S. M. E., M. E. (34). 1527.

**Controller—Accountant—Auditor**—More than 20 years experience in executive positions as General Auditor of five companies comprising Gas, Electric, Street Railway, Telephone, Bus Utilities. Handled all Treasury matters, Taxes and instituted sales promotion programs, public relations policies. Also have had experience as Division Manager in Natural Gas Operations. (50). 1528.

**Home Economist**—Graduate, ten years well-rounded experience as Home Service Representative, Consultant, Supervisor, Head Teacher and Instructor in Foods. Outstanding experience in conducting consumer, employee and dealer educational programs. Can prepare and execute comprehensive field programs. Will consider opportunity leading to eventual Directorship small department or assistant larger department. 1529.

**Draftsman**—12 years public utility experience in sub-service work such as electric systems, gas mains, water and sewer systems, manholes, service boxes and subsidiary duct lines; 8 years topographical work; 5 years experience in all kinds of piping systems such as steam, firemans, hot, cold and oil piping systems. 1530.

That is not the fact. We feel certain that any comparison is better than none and while most of them are not all that could be desired, still they are frequently enlightening and result in increased knowledge and improvement in conditions and costs.

### POSITIONS OPEN

A progressive expanding gas company located in the Puget Sound country of the Northwest, has openings in the Engineering Department for men with the following qualifications. All must be **Graduate Engineers** under 45 years of age:

#### Distribution Engineer

With five years actual experience in Gas Distribution and Transmission Design. To assist Chief Engineer in development and expansion of transmission lines, feeders and distribution grid. Conduct Pressure Survey and work out Distribution Maintenance Schedules.

#### Distribution Main Draftsman

To keep up distribution main maps, extensions and retirements. Keep monthly and annual main records. Set up new detailed main plats using data from field books and work with Distribution Engineer.

#### Mechanical or Civil Engineer (recent graduate)

To start as Draftsman to work on both production and distribution engineering problems. Man of cadet caliber to learn engineering department functions. Work to include field contact. Write giving full details as to age, education, experience and availability. 0460.

**Gas Range Engineer**. Midwestern manufacture requires the services of a man with good technical education and experience in product design, combustion, and A. G. A. testing procedures. Write fully, giving experience, salary expected and date available. Include photo if available. 0461.

**Laboratory Test Engineer**. Midwestern manufacture requires the services of a man with good technical education and experience in gas and electric range laboratory testing and development work. Write fully, giving experience, salary expected and date available. Include photo if available. 0462.

**Superintendent of service** with thorough knowledge of servicing commercial gas burning equipment. National organization with locations in principal cities. Permanent. Give complete information including salary expected. 0463.

**Experienced Production and Distribution Superintendent** of proven ability, under forty years of age, as Assistant to Superintendent of Gas Operation. Properties total 80,000 meters. State age, education, experience, salary desired, and date available. 0465.

**Corrosion and Cathodic Protection Engineer. Graduate Engineer** under 35 with some experience to supervise, direct and coordinate work of this character in connection with transmission of natural gas in Montana and the Dakotas. 0466.

Company engaged in extensive and continuing program of changing over client manufactured gas companies to natural or liquefied petroleum gas has several attractive openings on supervisory staff for **gas engineers** with training in conversion work or with adequate experience in **gas distribution and utilization**. 0467.

**Natural Gas Meter** man between 25 and 45 years old, who can install, repair and test natural gas meters. Permanent position. 0468.

**Measurement and Gas Metering Engineer. Graduate Engineer** under 35 with experience to supervise and direct measurement and testing in connection with production and distribution of natural gas in Montana and the Dakotas. 0469.

**Distribution Superintendent** manufactured gas company in Southeast with 20,000 customers. Have charge of distribution, appliance servicing, meter shop and automotive equipment. 0470.

## ADVISORY COUNCIL

ERNEST R. ACKER.....Poughkeepsie, N. Y.  
 F. M. BANKS.....Los Angeles, Calif.  
 BURT R. BAY.....Omaha, Neb.  
 LYMAN L. DYER.....Dallas, Texas  
 RALPH L. FLETCHER.....Providence, R. I.  
 B. H. GARDNER.....Columbus, Ohio  
 GEORGE S. HAWLEY.....Bridgeport, Conn.  
 FRANK E. HOENIGMANN.....Chicago, Ill.  
 W. ALTON JONES.....New York, N. Y.  
 L. E. KNOWLTON.....Providence, R. I.  
 MALCOLM LEACH.....Taunton, Mass.  
 J. L. LLEWELLYN.....Brooklyn, N. Y.  
 H. N. MALLON.....Bradford, Pa.

L. A. MAYO.....Hartford, Conn.  
 C. E. PACKMAN.....Chicago, Ill.  
 BRUNO RAHN.....Milwaukee, Wis.  
 O. H. RITENOUR.....Washington, D. C.  
 W. F. ROCKWELL.....Pittsburgh, Pa.  
 LOUIS RUTHENBURG.....Evansville, Ind.  
 B. A. SEIPLE.....Asbury Park, N. J.  
 C. V. SORENSON.....Hammond, Ind.  
 MARCY L. SPERRY.....Washington, D. C.  
 J. H. WARDEN.....Tulsa, Okla.  
 R. E. WERTZ.....Amarillo, Texas  
 HARRY K. WRENCH.....Minneapolis, Minn.  
 CHARLES G. YOUNG.....Springfield, Mass.

## ASSOCIATED ORGANIZATIONS

### Gas Appliance Manufacturers Association

Pres.—D. P. O'Keefe, O'Keefe & Merritt Co., Los Angeles, Calif.  
 Man. Dir.—H. Leigh Whitelaw, 60 East 42nd St., New York, N. Y.

### Canadian Gas Association

Pres.—Lt. Col. Thomas Weir, Union Gas Co. of Canada Ltd., Chatham, Ont.  
 Exec. Sec.-Tr.—George W. Allen, 7 Astley Ave., Toronto.

### Gas Meters Association of Florida-Georgia

Pres.—B. G. Duncan, South Atlantic Gas Co., Orlando, Fla.  
 Sec.-Tr.—J. W. Owen, Central Florida Gas Corp., Winter Haven, Fla.

### Illinois Public Utilities Association

Pres.—C. W. Organ, Central Illinois Light Co., Springfield, Ill.  
 Sec.-Tr.—T. A. Schlink, Central Illinois Light Co., Springfield, Ill.

### Indiana Gas Association

Pres.—E. D. Anderson, Northern Indiana Public Service Co., Hammond, Ind.  
 Sec.-Tr.—Clarence W. Goris, Northern Indiana Public Service Co., 500 Broadway, Gary, Ind.

### Michigan Gas Association

Pres.—Henry Fink, Michigan Consolidated Gas Co., Detroit, Mich.  
 Sec.-Tr.—A. G. Schroeder, Michigan Consolidated Gas Co., Grand Rapids, Mich.

### Maryland Utilities Association

Pres.—O. H. Ritenour, Washington Gas Light Co., Washington, D. C.  
 Sec.—Raymond C. Brehaut, Washington Gas Light Co., Washington, D. C.

### Mid-Southeastern Gas Association

Pres.—A. E. Jones, Tidewater Power Co., Wilmington, N. C.  
 Sec.-Tr.—Edward W. Ruggles, North Carolina State College, Raleigh, N. C.

### Mid-West Gas Association

Pres.—E. C. Deane, Central Electric & Gas Co., Sioux Falls, S. D.  
 Sec.-Tr.—Roy B. Searing, Sioux City Gas & Electric Co., Sioux City, Iowa.

### Missouri Association of Public Utilities

Pres.—J. F. Porter, Jr., Kansas City Power & Light Co., Kansas City, Mo.  
 Gen. Counsel—Wm. H. Allen, 101 W. High Street, Jefferson City, Mo.  
 Sec.—E. A. Beer, 101 W. High Street, Jefferson City, Mo.

### Natural Gas and Petroleum Association of Canada

Pres.—S. A. Morse, Union Gas Co. of Canada, Ltd., Chatham, Ont.  
 Sec.—Jos. McKee, United Gas and Fuel Co. of Hamilton, Ltd., Hamilton, Ont.

### New England Gas Association

Pres.—L. E. Knowlton, Providence Gas Co., Providence, R. I.  
 Exec.-Sec.—Clark Belden, 41 Mt. Vernon St., Boston, Mass.

### New Jersey Gas Association

Pres.—Frank H. Darlington, Peoples Gas Co., Glassboro, N. J.  
 Sec.-Tr.—E. A. Smith, Public Service Electric and Gas Co., Newark, N. J.

### Oklahoma Utilities Association

Pres.—A. F. Potter, The Gas Service Company, Bartlesville, Okla.  
 Sec.—Kate A. Niblack, 625 Biltmore Hotel, Oklahoma City, Okla.

### Pacific Coast Gas Association

Pres.—H. W. Edmund, Coast Counties Gas and Electric Co., Santa Cruz, Calif.  
 Man. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.

### Pennsylvania Gas Association

Pres.—Frank H. Trembley, Jr., The Philadelphia Gas Works Co., Philadelphia, Pa.  
 Sec.—William Naile, Lebanon Valley Gas Co., Lebanon, Pa.

### Pennsylvania Natural Gas Men's Association

Pres.—B. D. Phillips, T. W. Phillips Gas & Oil Co., Butler, Pa.  
 Exec. Sec.—Mark Shields, 2619 Grant Bldg., Pittsburgh, Pa.

### Southern Gas Association

Pres.—Dean A. Strickland, United Gas Corp., Houston, Texas.  
 Man. Dir.—Robert R. Suttle, 1011 Burt Building, Dallas 1, Texas.

### Wisconsin Utilities Association

Pres.—B. E. Miller, Wisconsin Power and Light Co., Madison, Wis.  
 Exec.-Sec.—A. F. Herwig, 135 West Wells St., Milwaukee, Wis.



# AMERICAN GAS ASSOCIATION

HEADQUARTERS, 420 LEXINGTON AVE., NEW YORK 17, N. Y.

A. G. A. TESTING LABORATORIES • 1032 East 62nd Street, Cleveland 14, Ohio • 1425 Grande Vista Avenue, Los Angeles, Calif.  
WASHINGTON OFFICE: Albee Bldg., Washington 5, D. C.

## ◀ OFFICERS ▶

President .....	EVERETT J. BOOTHBY .....	Washington, D. C.
First Vice-President .....	R. H. HARGROVE .....	Shreveport, La.
Second Vice-President .....	HUDSON W. REED .....	Philadelphia, Pa.
Treasurer .....	EDWARD F. BARRETT .....	Mineola, N. Y.
Assistant Treasurer .....	V. T. MILES .....	Mineola, N. Y.
Managing Director .....	H. CARL WOLF .....	New York, N. Y.
Secretary .....	KURWIN R. BOYES .....	New York, N. Y.

## ◀ DEPARTMENT CHAIRMEN ▶

Manufactured Gas Department .....	HUDSON W. REED .....	Philadelphia, Pa.
Natural Gas Department .....	R. H. HARGROVE .....	Shreveport, La.

## ◀ SECTION VICE-PRESIDENTS AND CHAIRMEN ▶

Accounting Section .....	E. F. EMBREE .....	New Haven, Conn.
Residential Gas Section .....	J. J. QUINN .....	Boston, Mass.
Industrial & Commercial Gas Section .....	HARRY A. SUTTON .....	Newark, N. J.
Manufacturers' Section .....	FRANK H. ADAMS .....	Toledo, Ohio
Publicity & Advertising Committee .....	CHARLES A. TATTERSALL .....	Syracuse, N. Y.
Technical Section .....	LESTER J. ECK .....	Minneapolis, Minn.

## ◀ DIRECTORS ▶

R. G. BARNETT .....	Portland, Ore.	LYLE C. HARVEY .....	Cleveland, Ohio
WALTER C. BECKJORD .....	Cincinnati, Ohio	D. A. HULCY .....	Dallas, Texas
ARTHUR F. BRIDGE .....	Los Angeles, Calif.	HENRY H. MORSE .....	Gardner, Mass.
FLOYD C. BROWN .....	Chicago, Ill.	NORTON McKEAN .....	Albany, N. Y.
JAMES A. BROWN .....	New York, N. Y.	E. P. NOPPEL .....	New York, N. Y.
CHARLES M. COHN .....	Baltimore, Md.	C. E. PAIGE .....	Brooklyn, N. Y.
E. H. EACKER .....	Boston, Mass.	J. FRENCH ROBINSON .....	Cleveland, Ohio
HENRY FINK .....	Detroit, Mich.	HERMAN RUSSELL .....	Rochester, N. Y.
R. E. FISHER .....	San Francisco, Calif.	A. H. STACK .....	Tampa, Fla.
J. N. GREENE .....	Birmingham, Ala.	T. J. STRICKLER .....	Kansas City, Mo.
H. E. HANDLEY .....	Jackson, Mich.	E. J. TUCKER .....	Toronto, Ont.
		P. S. YOUNG .....	Newark, N. J.

## ◀ ASSOCIATION STAFF ▶

Managing Director .....	H. CARL WOLF	Director of Promotion .....	JOHN H. WHITE, JR.
Assistant Managing Director .....	JOHN W. WEST, JR.	Director, New Freedom Gas	
Assistant Managing Director and		Kitchen Program .....	H. VINTON POTTER
Director, Natural Gas Dept. ....	GEORGE H. SMITH	Director, Advertising .....	CHARLES W. PERSON
Secretary .....	KURWIN R. BOYES	Director, Publicity .....	GEORGE A. McDONALD
Secretary, Manufactured Gas Dept.		Director, Statistical Bureau .....	WALTER E. CAINE
and Technical Section .....	A. GORDON KING	Director, Testing Laboratories (Cleveland, Ohio)	
Controller and Secretary,		..... R. M. CONNER	
Accounting Section .....	O. W. BREWER	Supervisor, Pacific Coast Branch Laboratories	
Secretary, Industrial and		(Los Angeles, Calif.) .....	W. H. VOGAN
Commercial Gas Section .....	MAHLON A. COMBS	Coordinator of General Research .....	EUGENE D. MILENER
Secretary, Residential		Secretary-Coodinator, Gas Production	
Gas Section .....	F. W. WILLIAMS	Research Committee .....	EDWIN L. HALL
Home Service Counsellor .....	JESSIE McQUEEN	Fuel Consultant (Washington, D. C.),	GEORGE W. BEAN
		Utilization Engineer .....	C. GEORGE SEGELER
Editor, A. G. A. MONTHLY .....	JAMES M. BEALL		



